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ABSTRACT

The categorical sections of the proposed program for outdoor recreation research are (1) principal findings and recommendations of the National Academy of Sciences, (2) the social and behavioral dimensions of outdoor recreation, (3) the economics of outdoor recreation, and (4) the operation of recreation service systems. Among the specific topics discussed are research objectives and priorities; appraisal of current research efforts; scope of needed research; specific illustrative research problems; planning, coordination, and administrative systems; access-systems research; information sources; and educational training. Three appendices are included. (AL)



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a program for outdoor recreation research

Report on a
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June 2-8, 1968
by the
National Academy of Sciences
for the
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Bureau of Outdoor Recreation

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preface

Outdoor recreation is currently assuming an important position among our country's concerns with the quality of environment and social life. As a consequence, we are witnessing rapid change in the major programs of outdoor recreation and in the policies governing those programs. A traditional viewpoint that viewed outdoor recreation as a valuable by-product of conservation policies—representing the idea of a stewardship of potentially productive economic resources—is being superseded by a philosophy that holds recreation to be a primary public purpose and would preserve and develop such resources for recreational use.

The traditions and concepts now emerging have a long and notable history. A landmark of signal importance is the Outdoor Recreation Resources Review Commission, established by Congress in 1958, which published its report in 1962. This report reviews the trends and developments toward recognizing the value of recreation as a primary public purpose and provides perspective and foresight as to the evolution of this view. In his paper, "The Evolution of Outdoor Recreation Policy," Dr. Edward C. Crafts, former Director of the Bureau of Outdoor Recreation, summarizes the main thrusts of the Commission's report as follows: (1) Recreation should be in the service of people; (2) it should be more closely allied to the highly populated urban areas; (3) there is need for much greater action and responsibility by state and local governments and private business; (4) there is need for better coordination among the numerous federal agencies; and (5) the most urgent need is to preserve and place under effective public or private control land and water resources that will be needed in the future for recreational purposes.*

** Proceedings of a National Conference on Policy Issues in Outdoor Recreation, September 6-8, 1966, Utah State University (pp. 13-22), distributed by the Bureau of Outdoor Recreation, U.S. Department of the Interior, Washington, D.C.*

In a series of subsequent far-reaching actions, the federal government has established agencies and programs that are now translating a philosophy of recreation into concrete activities and operations on many fronts. The Bureau of Sport Fisheries and Wildlife was established to replace a number of loosely coordinated agencies, and the Fish and Wildlife Coordination Act provides for special recreation facilities on National Wildlife Refuges and at National Fish Hatcheries. The recreational and the resource-conservation aspects of national forestlands were given equal priority under the Multiple-Use Sustained-Yield Act; and, as a direct consequence of the recommendation of the Outdoor Recreation Resources Review Commission, the Bureau of Outdoor Recreation was created. Moreover, two new instruments of policy formulation were created: the President's Council on Recreation and Natural Beauty, at the Cabinet level, and its parallel, the Citizen's Advisory Committee on Recreation and Natural Beauty. A steady stream of resources and conservation and preservation legislation has been enacted by Congress; it is estimated that the annual expenditure of the federal government for acquisition and capital improvements of outdoor recreation resources alone is now about \$800 million.

The growing importance and relevance of outdoor recreation has not yet been reflected to an equal degree in the research and systematic analysis on which planners and managers in the field must rely for guidance and direction. Current research endeavors are concerned predominantly with resources, with the natural conditions that govern their change, and with the management policies that contribute to their conservation and preservation. In comparison, little research emphasis is given to obtaining a better understanding of the social and psychological aspects of outdoor recreation. This imbalance became particularly apparent when the Bureau of Outdoor Recreation of the Department of the Interior was recently assigned statutory responsibility for developing a comprehensive plan for the federal government's activities in outdoor recreation, projected over the next five years, and to provide government-wide leadership in execution of the planned program. As part of this plan, and supporting its implementation, the Bureau requires a research-and-analysis effort in many areas.

In December 1967, the Secretary of the Interior asked the National Academy of Sciences to organize and conduct a study conference on outdoor recreation research. Its main purpose was to formulate a course of action to increase understanding of the economics, demand, and motivation of outdoor recreation, so that needs could be projected and sound investments could be made. The study set itself the tasks of (1) identify-

ing problems that are amenable to research and that are involved in planning, acquiring, developing, and operating recreational facilities, and in interpreting demand for outdoor recreation, its values, its forms, and its social functions; (2) establishing realistic research objectives and specific research programs for achieving them; (3) providing a conceptual framework for such programs; and (4) recommending measures to develop the capabilities and institutional arrangements required for effective implementation.

The need for such a research program was already recognized by the Outdoor Recreation Resources Review Commission in its series of study reports published in 1962.* Subsequently, a National Conference on Outdoor Recreation Research, held at the University of Michigan in 1963, brought about a first comprehensive discussion of requirements and on-going efforts in this field. Similar conferences on Professional Education for Outdoor Recreation (Syracuse University, 1964) and on Policy Issues in Outdoor Recreation (Utah State University, 1966), have presented the key issues in these areas, as well as information pertinent to the conduct of rapidly expanding and diversifying programs in outdoor recreation. In the light of these efforts, it became a major aim of the present study to develop an action-oriented plan for a coherent research program of the required character.

The Bureau of Outdoor Recreation of the Department of the Interior, with assistance from the Conservation Foundation, agreed to sponsor the proposed study and entered into a contract with the National Academy of Sciences for that purpose. Early in 1968, a planning group was established under the chairmanship of Dr. Alvin Bertrand, Department of Sociology and Rural Sociology, Louisiana State University. This planning group defined the scope of the study, determined the general strategy of approach, and chose the members of the study group. Participants were chosen principally on the basis of their experience in broad disciplines that are most clearly pertinent to problems of outdoor recreation.

The study conference convened during the week of June 2-8, 1968, at the National Academy of Sciences Summer Study Center, Woods Hole,

* Research needs were identified throughout the entire series of 27 study reports. However, in the Commission's report to the President and Congress, entitled *Outdoor Recreation for America*, Chapter 14, "Research—An Essential Foundation," dealt directly with research program recommendations. In addition, Study Report 27, entitled *Outdoor Recreation Literature: A Survey*, presented a comprehensive review of existing research literature on outdoor recreation problems, with annotations by the Librarian of Congress.

Massachusetts. The participants were organized into three working panels under the chairmanship of Rolf Meyersohn, City University of New York; John V. Krutilla, Resources for the Future, Inc.; and R. Keith Arnold, The University of Michigan.

These panels concerned themselves with research on the basic social and psychological dimensions and functions of outdoor recreation, the economics of demand and supply, and the study of recreational resources and service operations, respectively. These themes were conceived, not as mutually exclusive domains of outdoor recreation research, but as complementary perspectives from which to view and structure the prospective research program. The structure of this report reflects this approach.

In view of the exceptionally broad, multidisciplinary span of the area under review, the responsibility for providing staff assistance to this study was shared jointly by three divisions of the National Research Council: Behavioral Sciences, Biology and Agriculture, and Earth Sciences. We are thus pleased to acknowledge our debt to Alexander L. Clark, Russell Stevens, and Walter Bailey, respectively, of the staffs of these divisions, for their valuable contributions to the planning and conduct of this study conference. F. J. Weyl, of the President's Office, National Academy of Sciences, reduced the widely ranging proceedings of the study conference into a coherent record and provided coordination as necessary; and Mrs. Carole Parsons, attached at the time to the Office of the Division of Behavioral Sciences, provided valuable editorial assistance, as did Robert R. Hume, Publications Editor of the National Academy of Sciences.

Responsibility for seeing the report of the study conference through to final publication was lodged in the Division of Behavioral Sciences. The Chairman of the Division of Behavioral Sciences, Herbert A. Simon, and two other members of the Division, Laura Nader and William H. Riker, as well as Sterling B. Hendricks, a member of the Academy, who reviewed the draft final report for the Division, made helpful constructive comments.

The final version of the study conference report was prepared by Alexander L. Clark. It should be emphasized, however, that this report by the National Academy of Sciences to the Bureau of Outdoor Recreation is the result of the deliberations of the Study Conference on Outdoor Recreation Research and the valuable individual contributions of all who participated in it.

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1 principal findings and recommendations

A. Outdoor Recreation as a Target for Research

This report views recreation as a social institution whose purpose is to enhance human life by offering satisfaction and by enriching human capital. Providing recreation opportunities sufficient in number and diversity for the constructive and satisfying use of leisure by all of the nation's people is a primary public purpose. Providing recreation calls for exercising influence and direction over a variety of political and economic processes; acquiring, developing, and managing recreational resources and facilities; and the use of these facilities by people. Identifying and overcoming the obstacles that may obstruct a fuller realization of the potentials for outdoor recreation is the fundamental objective to which the research program recommended in this report is addressed.

The traditional view that human activities in the pursuit of recreation are a form of indulgence having marginal status among the concerns of society is no longer tenable. Indeed, the institution of recreation and the action systems that support it are treated in this report as comparable in importance and priority with the social structures centered on production and consumption.

In order to understand recreation better in these terms, we must recognize:

1. the forces that drive it, springing from the behavior patterns of the

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people who engage in it, the social and psychological needs they seek to satisfy, and the established and encouraged forms of consumption;

2. the interactions that couple recreation with other social institutions and action systems;

3. the impact of recreation on the natural and human resources for which it competes and that it needs for its maintenance; and

4. the dynamics of recreational institutions.

Such a multidimensional approach to outdoor recreation can make a twofold contribution: (1) understanding will be accelerated by identifying the analogies with other, more extensively studied, social structures, and (2) investigation of outdoor recreation needs will be stimulated by insights gained from the study of other structural contexts.

The activities and structures that together characterize the institution of outdoor recreation include, in particular, the allocation of physical resources, the economic operations in support of recreation, and the organizations operated for and by people concerned with recreation. In many ways, however, the social structures serving outdoor recreation cannot be differentiated clearly, within the broader recreational milieu, from those serving general leisure-time activities. The extent to which outdoor recreation is a single comprehensive system is itself a question to be clarified by research.

Social scientists have found outdoor recreation a difficult area in which to work because recreation phenomena tend to cut across disciplinary and methodological lines. Thus, the demand for outdoor recreation has three different perspectives: actual use and participation (see, e.g., Chapter 4, Section B), fluctuation of demand with the price at which it is obtainable (Chapter 3, Section B), and personal preference and latent social needs (Chapter 2, Section E, Problem 1). Any rationalization of resource allocation related to uses and users will have to take into account empirical and theoretical elements at all these conceptual levels.

A second class of problems is concerned with the management of outdoor recreational resources. Management must be responsive to both political realities and administrative efficiency. For example, the discussion of resource-quality measures (Chapter 4, Section D) points out the need to understand not only resource ecology but also supply economics and the effect of quality on user preferences. Systems interdependencies must be taken into account, especially when one employs field experiments, as one must inevitably do, in the study of the social structures of outdoor recreation.

B. Research Objectives and Priorities

The aims of a national program of outdoor recreation research will have to be twofold:

1. to broaden systematically the understanding of outdoor recreation as a social institution and of the other social institutions on which it depends, and
2. to assist policy and program decisions concerning the operation and modification of recreation systems.

The research program and capabilities spelled out here are guided by these two aims. The action portions of the recommendations set forth in this report are addressed principally to the federal government, while the problems recommended for investigation are of general interest. The report may be read as an initial approach to research, as well as an invitation to universities, foundations, private enterprise, and state and local governments for greater participation in the study of recreation problems.

Recommendation 1

As a matter of highest priority, the study conference recommends that a substantial effort be established to apply concepts to research on outdoor recreation that will broaden research programs beyond the present primary emphasis on managing recreation resources.

DISCUSSION Without diminishing the importance of research related to the management of recreation resources, the study group urges support of additional conceptual approaches to remedy present deficiencies in recreation-research programs. To broaden understanding of outdoor recreation as a social institution, research programs should be designed to attract social and behavioral scientists. In doing so, many studies of outdoor recreation will inevitably be conducted by independent investigators, will be exploratory in character, and will have limited scope. Accordingly, an effort should be made to develop an additional research capability primarily preoccupied with establishing coherent frames of reference for more specific and partial studies.

Examination of specific problems, on the other hand, must raise questions about the indirect and long-range effects of particular program and policy actions, breaking with a past in which attempts to solve one prob-

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lem have tended to exacerbate others. It follows that the recommended efforts should be conducted under arrangements that encourage the close coupling of researchers and policy-makers (Chapter 1, Section D, Recommendation 7).

Recommendation 2

In parallel with this independent-investigator and systems-research effort, and of equally high priority, the study conference recommends establishment of a program of vigorous experimentation on the social structures serving outdoor recreation.

DISCUSSION Experiments—both large and small—are found in other social areas, such as the Model Cities Program, regional medical programs of the pilot kind, and the guaranteed-annual-income test in New Jersey. Although some experimentation now takes place in outdoor recreation as well, a much more vigorous search must be made for ways to add to our knowledge of recreation. The possibility of creating new facilities, especially in the inner city, should be explored. Such new facilities might include urban schools for total community use, including recreation; urban parks, conjoined with apartments for senior citizens who could provide child care for working mothers; or underground parking installations topped by recreation areas. Similarly, new programs should be tried in traditional settings, e.g., family vacation centers providing recreation with education for adult and child, or perhaps, publicly operated educational camps for children to supplement private camps.

The design and evaluation of these experiments require careful attention. At the conclusion of an experiment, it must be possible to tell with some confidence what has been learned and how later programs can be improved.

The remaining priority elements of the proposed research program are somewhat more dispersed and centrifugal by nature. It is intended, however, that they should derive coherence and common purpose from the activities described in Recommendations 1 and 2.

Recommendation 3

The study group assigns next-highest priority to a coordinated program of analyses, observations, and measurements aimed at understanding the social and psychological forces that shape and sustain outdoor recreation programs.

Principal Findings and Recommendations 5

DISCUSSION There is substantial promise for research in a number of areas: analysis of satisfactions sought in recreation activities, diagnosis of dysfunctional behavior, the relation between activities and the value imputed to them as reflected in time and resources allocated, and the benefits to the external community. It is of particular importance to get such work started in communities of the inner city, where there are special conditions of urgency. (For a more detailed discussion of these research needs, refer to Chapter 2, Section E, Problem 3.) One possible conceptual framework for such research is presented in Appendix A, summarizing work done by Samuel Z. Klausner.

It will be necessary to go to the universities for the talent required to implement the recommended program, since most social and behavioral scientists having the requisite qualifications are located there. Because the researchers are dispersed over many campuses, the program will have to be divided to some extent into relatively small, individual projects. Some form of guidance by peers will be needed to ensure a common framework for interpretation of results. (See Chapter 1, Section D, Recommendation 10).

Recommendation 4

High priority should also be given to economic research on outdoor recreation. In recent years, much insight has been added through models of economic demand. Further work to expand and enrich these models deserves special emphasis.

Vigorous research is needed to develop models of the economic demand for outdoor recreation that will make possible:

1. inclusion of sociological and demographic aspects by analyzing the dependence of the number, quality, and distribution of recreational experiences sought on the location, size, social characteristics, and psychological needs of the user population;
2. estimation of the effect on demand for outdoor recreation of substantial changes in income distribution, e.g., under conditions of guaranteed annual wages; and
3. the dependence of demand for outdoor recreation on leisure-time budgets.

DISCUSSION The first of these objectives is being studied, but the attempt is restricted by limited availability of data when more-complete projections of trends are required. Cooperative research involving eco-

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nomics and the behavioral sciences is needed to develop better models for anticipating consumer behavior in outdoor recreation. Important gains can come from investigations of specific decision-making situations in which recreation is in competition with alternative uses of resources.

In connection with the third objective, attention should be given to predictions that, between now and A.D. 2000, the per capita amount of available leisure time will increase less rapidly than income, with the result that lack of time rather than income, as in the past, will be the principal restraint on demand.

Recommendation 5

Equally important in the field of recreation economics is the establishment of a strong and well-knit program of investigations of the factors relating to the supply of recreational services. These must include the measures and standards needed to determine the quality of recreational services, the carrying capacity of a resource, as well as the effects of use and of intensity of use on the quality of services.

DISCUSSION Such determinations are needed particularly (a) where the supply of recreation services is a function of the costs, on the one hand, of the acquisition, development, maintenance, and administration of the facilities, and, on the other hand, of pre-empted nonrecreational uses and depletion; and (b) where the effectiveness and cost of mechanisms to control excessive use constitute a particular concern. A special effort should be aimed at the question of criteria for the selection, preservation, and management of unique and nonreproducible natural resources.

A list of researchable problems in these areas is presented in Chapter 3, Sections B-E. The development both of research methods and of ultimate results will require time. The needed research should not, however, be deferred until the methodological problems have been solved. On the contrary, research on substantive problems currently important to the supply of outdoor recreation should be planned in a way that will also contribute to solving problems of methodology.

A particularly important aspect is the tremendous range of environmental and social settings involved in outdoor recreation, giving rise to problems in radically different forms, depending on geographical region, ecological environment, the population pattern, or other similar considerations. As a consequence, in most cases, the studies will have to be localized.

Recommendation 6

Investigation of the communication and information needs of outdoor recreation is the final priority task for the research programs. Specifically, studies and experiments should be conducted for:

1. developing an effective communications system to inform recreation users of recreation services and to provide feedback from users to the managers of the activities, and
2. arranging for the collection, storage, and use of information on outdoor recreation, and developing the necessary means to improve the usefulness of this information to users, planners, and managers, as well as to the commercial services.

DISCUSSION Careful, knowledgeable management of information and data is as necessary to the success of recreation services as to the services of health and education. Of particular importance for the delivery of such services is a well-managed information and data base; so investigations into the technical and operational problems involved in creating such a base are required. (See Chapter 4, Section H.)

Other Research Opportunities

Other promising areas of research are mentioned, as appropriate, throughout the following three chapters of this report. It can be presumed that the prospective research program, having gained strength and coherence under the arrangements described in the remaining recommendations, will take advantage of proposals for research in other than the priority areas presented by interested researchers with outstanding qualifications.

Thus, further directions for economic research will be found in possibilities of price management and funding of outdoor recreation, such as the concept of levying user fees at facilities visited by the affluent to help finance facilities in areas of exceptional population density. Another possibility is to induce the private sector to complement public resources with certain volumes and kinds of privately operated facilities; here research on economic problems must be joined with the investigation of legal and institutional considerations. Other research is needed on:

- possibilities for expanding the supply of recreational opportunities, especially in areas of exceptional population density

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- operations research dealing with the planning, coordinating, and administration of services
- the means and modes of access to outdoor recreational opportunities
- manpower problems

The study group feels that little would be gained by trying to plan the detailed implementation of these research efforts at this time. Instead, in subsequent recommendations on implementation it proposes arrangements for guiding and coordinating efforts over the longer term.

C. Appraisal of Current Efforts

The total annual commitment of the federal government just for acquisition and capital improvement of outdoor recreational resources is about \$800 million. On the other hand, the current research support for planning and administering this effort is modest indeed, aside from the benefits derived from research in other areas to which much larger funding commitments have been made. Research programs directly addressed to recreation problems probably do not exceed more than \$3 million in total annual expenditures, or about one cent for every three dollars of acquisition and capital improvement expenditure. If a common industrial formula of investing one dollar in research and development for every hundred dollars in sales were used as a formula to calculate research-and-development requirements in recreation, the annual research investment would be \$24 million.

Prominent among the benefits derived from research in other areas are (1) the extensive investigations, sponsored by the Bureau of Sport Fisheries and Wildlife, which deal with the biology, ecology, and management of wildlife resources, and (2) the comparable programs of the Federal Water Pollution Control Agency, which are concerned, in equal measure, with water-quality assessment and surveys and with water-quality management and control. Neither of these programs endeavors to illuminate the operation of outdoor recreation as a social system, but the data and results that they produce and the stewardship of resources that they support make substantial contributions to the operation of outdoor recreation programs.

Not to be forgotten in this context is the long-term significance for outdoor recreation of the endeavors of the International Biological Program. Under U.S. leadership, coordinated research efforts are now getting under way on each of six major ecological systems, and comparable

emphasis will be given to programs that deal with questions related to the interaction of man with his biological environment.

Equally significant is the work of the National Institute of Mental Health through its Center for Study of Metropolitan Problems. Of its annual budget of about \$4 million, almost two thirds is devoted to supporting in-house or contract research on social policy and human adjustment to the environment.

Compared with such major research undertakings, the research programs directly addressing recreation problems are diminutive. Among these, that of the Forest Service is notable for its size and cogent coordination. Commanding a budget in fiscal year 1968 of approximately \$828,000, it is currently supporting 31 research scientists at regional stations, as well as university research funded through some 30 grants. Within the limits of its clearly defined mission, it addresses problems that are often encountered in the management of forestland recreation resources and the socioeconomic factors affecting their use. Its growth has been orderly in scope and budget, and the program looks forward to a similarly well-structured future development.

At the same time, the beginning of research programs on recreation are found in several other federal agencies. The Bureau of Outdoor Recreation (BOR), with limited resources, has made a determined start in research on social and psychological factors relating to outdoor recreation.

Both the Department of Housing and Urban Development and the Department of Health, Education, and Welfare have missions that call for bona fide programs of recreational research, but neither has yet taken more than initial exploratory steps.

It is not surprising, then, that an attempt to describe the on-going national effort in outdoor recreation research meets with practical difficulties, and the results present a very fragmented picture. The results of recent stock-taking efforts by the BOR are presented in Appendix B and summarized in Table 1.

A principal difficulty is the lack of certainty about how much of the multimillion-dollar effort in resource ecology and management can be viewed as pertaining to outdoor recreation. To be sure, the results of this effort are being used to an increasing extent, and to good purpose, in the operation of recreation services. Nonetheless, it seems clear that very little research is concerned explicitly with recreation, and that even less is directed to the social and personal aspects of recreation.

Furthermore, there is a lack of effective analytic tools and of materials for describing the operation of outdoor recreation systems. The

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TABLE 1 Federal Programs of Research Relevant to Outdoor Recreation

Agency	Program Level fiscal year 1968	Relation to Outdoor Recreation
Bureau of Sport Fisheries and Wildlife	\$ 6,900,000 4,100,000 2,000,000 8,000,000 75,000	Wildlife research Fisheries research Fish and wildlife restoration research Management studies Anadromous fish
Federal Water Pollution Control Agency	20,000,000	\$300,000—studies on recrea- tional activities as sources of pollution \$4,000,000 (approximately)— research and demonstration grants on causes and control of pollution
Office of Water Resources Research	6,500,000	\$518,200—studies by Water Resources Research Institute on multiple uses of water, economic implications of policy, conservation, and quality
National Park Service	2,000,000	\$500,000—natural science studies \$1,500,000—archeological re- search and historical studies
Army Corps of Engineers	1,000,000	\$600,000—in-house planning of recreational facilities \$400,000—recreation demand for fish and dams
Department of Agricul- ture, Forest Service	828,000	Recreation Research Program: use, interests, motivations of visitors, economics, biology, and management
Department of Agriculture, Economic Research Service (ERS), Agri- cultural Research Service (ARS), and Cooperative State Re- search Service (CSRS)	430,000	ERS—Economics of resources use including recreational alternatives ARS—Structures and plant materials of outdoor recreation interest CSRS—Economics of and returns on recreational use of resource land

TABLE 1—continued

Agency	Program Level fiscal year 1968	Relation to Outdoor Recreation
Tennessee Valley Authority (TVA)	375,000	Research and planning of recreational use and develop- ment of TVA reservoirs and lakes
Bureau of Outdoor Recreation	160,000	Research and projects supporting Nationwide Outdoor Recreation Plan
Office of Education	60,000	Education problems in outdoor recreation, outdoor education
Department of Housing and Urban Development	50,000	Open-space land and urban beautification; planning models for recreation needs
Bureau of Land Management	25,000	Recreation demands on little- used land

majority of the surveys conducted and the data accumulated are not well enough coordinated to be used cumulatively in correlative analyses. Prompt and vigorous attention should be given to the establishment of a common framework of definitions, conventions, standards, and procedures for the collecting, recording, and reporting of data.

D. Implementation Alternatives

In formulating its recommendations for actions with which to implement the research programs outlined in the preceding recommendations, the study group was influenced chiefly by the following:

1. Major research efforts in the recommended priority areas should be carried on under conditions that avoid fragmentation.
2. An intellectually stimulating climate must be provided for the conduct of the research.
3. The products of the recommended research efforts should be utilized by policy-making and program-planning groups in the BOR and in the other federal and state agencies with major responsibilities for outdoor recreation activities.
4. Notwithstanding the importance that the wise and foresighted administration of outdoor recreation affairs must assume in the longer

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term, it is unrealistic to expect large budgetary increments in the near future; these are ruled out by the current general tightening of budgets for exploratory research and by a judicious estimate of the priority that outdoor recreation is likely to be given.

Thus, the following recommendations call for the establishment of a core program consisting of three activities modest in scale and pioneering in nature to initiate research in three principal directions: (1) a flexible but well-integrated effort combining operations research and consultation, no larger in scale than the critical size required to ensure intellectual viability; (2) a catalytic effort to mobilize university capabilities in outdoor recreation research; and (3) a management and information activity located in the Department of the Interior.

It is recommended that these three responsibilities be assigned to three different institutions. In discussing this question, however, the study group also considered two alternative approaches, both of which had their advocates. One alternative would locate the systems-research activity within the proposed university-based center, possibly at the price of loosening this activity's bond to the agency headquarters where policies and decisions are made. The other envisions that the administration of at least a good part of the recommended programs of grants and contracts, especially those in the social sciences and economics, would be assigned to the same organization that conducts the systems research. Both alternatives are predicated on the judgment that initially, the sociological, psychological, and economic research on outdoor recreation should be performed by extramural groups working under government sponsorship rather than by an in-house staff. The weight of the majority opinion has continued to favor, at least for an initial attack, the arrangements proposed in our recommendations.

For the longer term, reliance is placed on advisory and coordinating arrangements to guide the program in its progress toward the broad objectives specified in this report. The advisory bodies involved will be in a position, specifically, to review the assignment of responsibilities in the program and to suggest redistribution along the lines of one of the above alternatives if experience shows this to be desirable. It is intended, moreover, that the study group's recommended arrangements for supporting and administering the research program in the near term will create the growth potential and flexibility required for developing, in due course, the more comprehensive program described later in this report.

Table 2 presents a rough estimate of an annual budget to cover the operation of the recommended research program during its initial three

years. This recommended level of funding is intended to provide for the orderly development of the program during its early stage, and to be revised thereafter in the light of experience and program needs.

TABLE 2 Annual Budget for Initial Three Years of the Recommended Core Program

Activity	First Year	Second Year	Third Year	Total, Three Years
Systems-research group on outdoor recreation (5 professionals) (Recommendation 7)	\$ 225,000	\$ 175,000	\$ 175,000	\$ 575,000
University center foundation grant (Recommendation 8)	250,000	250,000	500,000	1,000,000
Bureau of Outdoor Recreation research and information center staff (Recommendation 9)	350,000	100,000	100,000	550,000
Advisory committee on outdoor recreation research (Recommendation 10)	50,000	50,000	50,000	150,000
Research grant program in the social and behavioral sciences (Recommendations 3 and 4)	500,000	500,000	500,000	1,500,000
Total	\$1,375,000	\$1,075,000	\$1,325,000	\$3,775,000

Recommendation 7

The study group recommends establishment of a systems-research group on outdoor recreation, to be composed initially of a core team of about five professional staff members, which can be expected to grow to perhaps twice that size over the ensuing five years. The group would conduct broad analyses and reviews of operations and systems of outdoor recreation, classify their functions and purposes, examine the appropriateness of current recreation policy, suggest policy revisions where warranted, and offer advice about the possible impact of important policy changes.

DISCUSSION The successful use of research and analysis as an aid to making better policy choices for outdoor recreation calls for a research capability of a special sort. Its key characteristics are:

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1. *Continuity.* The research group itself must "enlist for the duration," must have time to develop and to learn, and must have a composition that changes only slowly over time.

2. *Single commitment.* The research group should be committed solely to outdoor recreation research, while of course calling upon persons with other skills for *ad hoc* assistance when needed.

3. *Problem-centeredness.* This requirement has significant implications for the group's commitment, size, and interdisciplinary composition, and for the institutional arrangements under which it operates. Because of the commitment, the group will address all the tasks of problem-solving, such as dispelling ignorance about particular ecological, economic, or social phenomena, clarifying conjectured relationships, and projecting the probable consequences of contemplated actions. Moreover, the group will not be limited by the boundaries of academic disciplines or institutional jurisdictions. Nor will the group's involvement in a problem end with the publication of a report. This does not mean, of course, that it will engage in a sales campaign, but rather that it will interact constantly with the decision-makers in order to explore elements that had to be neglected in the reported analysis, and to modify the analysis as new insights are acquired.

4. *Independence.* The group must be given the freedom it needs to define its research problems, to determine their boundaries, to fix appropriate objectives and criteria, and to choose suitable methods of analysis. In defining its problems, it will require ready access to on-going activities and operations and to their plans and policies. Hence, there is corollary need for this final key characteristic:

5. *Close coupling with decision-making.* Since analysis assists in decision-making, it must be tied closely to the decision process; there must be a continuing two-way interaction between researcher and policy-maker.

While, at some future time, the need to enlarge the scope and independence of the proposed systems-research group might lead to its reconstitution as an autonomous, not-for-profit venture, initially it seems best to establish it under contract with a qualified nonprofit organization. Resources for the Future, Inc., and the recently established Urban Institute are examples of the type of nonprofit institution that would probably be most appropriate. Although the substantive scope of neither organization covers the social structure of outdoor recreation in its entirety, there are sizable overlaps, such as the Urban Institute's urgent interest in the development of urban recreation systems. Both organizations would provide a suitable management setting for the proposed

systems group. The Urban Institute is directed by its charter to assemble its own high-quality staff for thorough and continuing study of the problems confronting the cities. Resources for the Future, on the other hand, although it was envisaged at its inception as a retailer to research organizations of resources provided by the Ford Foundation, developed early an in-house capability of high quality to monitor the research carried on under its grants.

An important aspect of any such contract relationship is that it should allow in principle, and in fact make use of, multiple funding, not only from government agencies but also from private sources. In particular, the study group considers it most desirable that the National Park Service participate with the BOR in establishing and working with the proposed systems-research group.

Recommendation 8

The study group recommends the earliest practicable establishment of at least one university-based center for research on outdoor recreation. Its charter group of researchers must necessarily be interdisciplinary and, though small in size, should be of the highest quality. The center should be established as a leading program on its home campus and should be liberally funded to include: (1) an in-house staff that will conduct research of a multidisciplinary and interuniversity character; (2) research grants to individuals; and (3) efforts related to the utilization of results, such as consulting and advisory services to public and private agencies, conferences, programs of continuing education, demonstration studies conducted in cooperation with action agencies, and publication and interpretation of research findings.

DISCUSSION While researchers in perhaps as many as 100 to 150 institutions are now working on various aspects of outdoor recreation, nowhere does there exist a concentrated social and behavioral science capability of sufficient scope in a university-based center for outdoor recreation research. Even with the existence of such a center, much of the research recommended in this report would have to be carried out by individual scholars scattered among a number of institutions and working only intermittently on outdoor recreation problems. Strong support from both the university community and the government will therefore be needed to assure excellence in the many activities connected with outdoor recreation research.

Moreover, in view of the growing demand for research related to practical societal questions, important advantages can be achieved by

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providing common foci such as the proposed center for university-government cooperation in support of such endeavors. Both basic and mission-oriented research questions should be investigated, new research personnel should be trained, and established workers should be retrained. The spiraling demand for manpower, at rising levels of qualification, gives special importance to educating advanced-degree students at such a center.

The study group urges that the center be established under an institutional core grant—a “seed grant,” as it were—in which the center’s management is given considerable latitude in selecting both the subjects and the forms of support. As the center develops, it can be expected that the core grant will be supplemented by special-project grants and contracts of increasing size and number.

Because the patterns and problems of outdoor recreation vary widely among geographic regions, the center should enlist the cooperation of other active and interested universities in the same region. The study group anticipates a requirement during the next five to ten years for establishing perhaps as many as six such centers, incorporating whatever arrangements prove notably successful in the initial attempt. Centers might be established for the following regions:

1. The Southwest, California, and Hawaii
2. The Northwest, including Alaska
3. The Rocky Mountain Region
4. The Southeast, including Puerto Rico
5. The Great Lakes Region
6. The Northeast

Recommendation 9

The study group recommends that the Research Division of the BOR be assigned the following functions:

1. develop research policies and provide program management for developing research efforts—especially for the program of regional university centers;
2. provide support and liaison for the proposed systems-research group; and
3. provide coordination, standardization, and clearinghouse services for the collection, recording, and reporting of information and data.

DISCUSSION Within the federal government, the BOR has been designated as the focal point for coordination and leadership in matters of outdoor recreation policy. With this mandate, and under the guidance of the advisory body described in Recommendation 10, the Bureau should be staffed to plan, develop, and administer the proposed research program. Moreover, in its coordinating role, the BOR can contribute to the quality and relevance of the total research effort of federal agencies in this area.

Finally, the Bureau's responsibility for developing a nationwide outdoor recreation plan places it in a special position regarding the use and communication of information developed in its research activities. The third of the above functions recommended for the BOR research activity includes much more than providing the services of a documentation and information center. Efforts to reduce the present incompatibilities in the collecting, recording, and reporting of data should include the design and evaluation of certain major nationwide stocktaking operations, such as the quinquennial National Recreation Survey to be conducted by the Department of the Interior. With the assistance of the systems-research group, the research division of the BOR should be a major participant in the creation of such data-gathering activities, to maximize their utility not only as tools for refining the conceptual and empirical understanding of outdoor recreation, but also as aids to the on-going research effort, by providing guidelines for the development of additional data that will add to information already on hand.

The performance of these functions falls specifically within the statutory mandate of the BOR, which may, therefore, be presumed to have the greatest interest and the highest probability of success in developing the required data resources.

Recommendation 10

The study group recommends that the establishment of the aforementioned research capabilities be accompanied by the creation of a highly competent research advisory board with the responsibility to carry forward and extend the work of the study group on outdoor recreation research by monitoring the products of on-going research programs, by planning alternative or additional programs, and by setting research priorities.

DISCUSSION Such a general research advisory committee can be formed either by direct appointment, following the examples set by the General

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Advisory Committee of the Atomic Energy Commission or the Research Advisory Committee of the Agency for International Development, or it can be established, like a variety of advisory bodies, under the aegis of the National Academy of Sciences. The study group favors the latter approach, because the advisory committee will assist the BOR as much in outdoor recreation research at the national level as in the conduct of its own research program. An independent committee would appear to the study group to be in a better position to advise on the issues that will arise in connection with the Bureau's exercise of its leadership role—issues that will inevitably touch the concerns of many agencies, in both the government and the private sector—than a committee directly appointed by the Department of the Interior and therefore bound by its policies.

Before reaching this position, the study group also gave serious consideration to, but rejected, the idea of instituting a national advisory commission on outdoor recreation research by congressional statute.

Recommendation 11

To supply the element of intragovernmental coordination that such a national advisory commission on outdoor recreation research would have been expected to foster, the study group recommends that the Federal Council for Science and Technology establish an interagency committee on recreation research with membership drawn from the immediate staff of the officials concerned with outdoor recreation research. Such an interagency body could focus its primary attention on the research implications of the concerns of the President's Council on Recreation and Natural Beauty.

DISCUSSION Reactivation of the Research and Technology Advisory Committee, which formerly functioned under the Recreation Advisory Council, has recently been achieved. The development and improvement of coordination and standardization of data collection has been proposed as its first task. Serious consideration should be given to organizing this or a similar group within the structure of the Federal Council for Science and Technology in order to give its efforts the attention that recreation research will inevitably need in the years to come.

Recommendation 12

One of the concerns of the advisory activity proposed in Recommendations 10 and 11 should be to explore the need for and the feasibility of

establishing a national institute of recreation research, which would have the following functions:

1. the conduct of research, in-house as well as extramural, under grants and contracts;
2. the recruitment and training of professional manpower in the recreation field;
3. general leadership in program planning, coordination, and policy guidance, especially with regard to the program of university centers advocated in Recommendation 8;
4. the managerial functions of budget and program support; and
5. administration of the information and data services.

DISCUSSION Some members of the study group were strongly of the opinion that such a national institute should be established immediately as an activity of the Department of the Interior in lieu of the more modest three-pronged attack proposed in this report. In the judgment of a majority of the study group, the comprehensive scope of the functions proposed for the institute, especially the inclusion of the responsibility for budget and program support, requires that it be organized within the federal government, rather than as a contractor-operated facility. For the same reason, it is felt that the systems-research group on outdoor recreation should remain outside the institute, while relying on it for support and liaison.

It also seemed clear that further exploration is needed before planning for such a national institute of recreation research. Legitimate questions can be raised about whether such an institute should be concerned just with outdoor recreation, or should deal with recreation in general, and, consequently, whether it should be attached to the Department of the Interior. On the one hand, it is difficult, especially in the urban environment, to make a satisfactory conceptual distinction between outdoor recreation and other recreational activities. Favoring the narrower focus, on the other hand, as well as assignment of the institute to the Department of the Interior, is the fact that outdoor recreation services, more than those for other forms of recreation, depend on public policy and public resources. The study group recognizes that these questions should be explored under broader auspices and with the participation, in particular, of the Department of Health, Education, and Welfare and the Department of Housing and Urban Development.

2

the social and behavioral dimensions of outdoor recreation

A. Introduction

Research relating to outdoor recreation can utilize earlier achievements of the social sciences in three ways. First, for some problems of outdoor recreation, relevant research findings already exist and have only to be sought out and identified. There is a good deal of such information, for example, on natural resources. Second, and more important, it is possible to approach certain problems of outdoor recreation by directly applying a conceptual technique developed for some well-researched social problem. For instance, the concepts of welfare economics can be applied in this way. The third and most significant benefits, however, are to be realized by taking such a conceptual technique from some developed discipline, either natural or social, and applying it to recreation problems by using a kind of analogical thinking. Thus certain sociological and psychological concepts are being usefully postulated in the field of recreation today, following a long history of use by social-welfare investigators to illuminate processes and problems of personal motivation and social adjustment.

It is important that research in outdoor recreation take advantage of all three of the above options, but particularly the third. Outdoor recreation research can be defined as a particular field of study in which known principles of human behavior can be applied and in which adaptation and redefinition of basic concepts would therefore be an essential research task.

It goes without saying that in maintaining continuity with relevant work that has already been done, it is always necessary to examine such

work very carefully to make sure that its results are really useful in the new research setting. The quinquennial National Recreation Survey, for example, should be reviewed continually with this in mind. Much as the Bureau of the Census maintains permanent advisory committees that plan future censuses even before the next one is in the field, the major examining activities of recreation, such as the Survey, should be guided by a permanent advisory committee that would include a variety of social scientists.

B. Defining Outdoor Recreation

It would be edifying to be able to present a common definition of outdoor recreation to be used by all researchers, but none exists. Indeed, one of the important tasks for research lies precisely in defining, expanding, and/or limiting the scope of outdoor recreation concerns. However, useful definitions of at least parts and aspects of the problem are implicit in the approaches mentioned above.

One such definition describes outdoor recreation as a system of scarce or depletable resources, the allocation and distribution of which can be analyzed by using economic models. Although some forms of outdoor recreation do not lend themselves easily to this approach, many others do. Research efforts in this vein are discussed in Chapter 3.

In another kind of definition, recreation is considered a *service* system. Here the human component is involved more directly than in the resource-system model, and other social service systems—health and education, for example—suggest useful analogies. Chapter 4 discusses studies that focus on this definition of outdoor recreation.

In many forms of outdoor recreation there is still another kind of problem for which none of the approaches of the social sciences seems appropriate. For example, although the ecology of wildlife is very much affected by human behavior, the kind of research now in progress in biology, forest management, and physical geography will be assisted only peripherally by social science concepts. The demand for hunting is a problem to which social scientists can address themselves; the reproductive habits of the deer are not. Clearly, many problems of resource management should continue to be handled by non-social scientists.

Still another problem of definition concerns the distinction between outdoor and indoor recreation. In many contexts, the restrictive term "outdoor" seems quite irrelevant. It may even be an impediment to gaining an understanding of the basic sociological and psychological factors involved in the organization of leisure time. True, in its current usage,

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the term "outdoor recreation" is often extended to include human experiences over a wide range of meanings, satisfactions, social settings, and activity groupings. But the term itself connotes the narrow world of administration and management. Some broader term would be better, preferably one related to leisure time, which is an important part of all forms of outdoor as well as indoor recreation.

Conceptualization of the component parts of leisure activities is another requirement for a theory of recreation. The result is bound to be multidimensional, as in the example found in Appendix A, which suggests the possibility of combining such seemingly different leisure activities as watching television, sitting before and gazing into a fireplace, and wading in a mountain stream.

Acquaintance with the attitudes and needs behind such activities is essential, even for the most pragmatic kinds of decision-making, although one would not wish to argue their relevance for all purposes. Neither would one wish to maintain that they are the only bases upon which a conceptualization of the component parts of leisure should be developed. Social meanings are not derived from activities, let alone from resources; they are more intimately related to the social institutions in which the activity occurs. In differentiating work from leisure, for example, it makes a difference that a fire warden gets paid for hiking through the backwoods. The hiking experience occurs within the setting of a specific social institution. His budgeting of time, his behavior, and his attitudes can be greatly affected by that fact. He can lose his job if he falls asleep. Yet, on a day-to-day basis, or on the level of most of the apparent meanings of the hiking experience, there may be no difference between the fire warden and the Sunday camper.

One can see from this brief exposition that redefinitions produce new knowledge. Even if little is known about a single meaning system to account for all leisure, quite a bit is known about the ways in which humans develop different patterns of living in different domains.

C. Priorities in Outdoor Recreation Research

There are many questions about the present patterns and benefits of the leisure experiences of people of different locations, ethnic groups, ages, and sexes. The questions are complex because they touch on so many aspects of human activity and are related to so many different scientific disciplines. The research to be undertaken must not be narrowly defined. A great variety of investigative activities is needed. Special effort should be devoted to developing new knowledge about basic human needs for

outdoor recreation, but a continuing series of facility-planning deadlines will also have to be met with the best available information. Both of these tasks can be accomplished better if communications among the people and institutions concerned are greatly improved. Last, but not least, more people must be trained to do the required research.

Special attention should be given to the present assignment of the Bureau of Outdoor Recreation (BOR) to coordinate but not control the recreational activities of the country. The Bureau, if provided with the requisite instruments, is in a position to guide the nation's recreational programs effectively, its potential being greatly enhanced by its unique organizational role, particularly its interdepartmental, interagency, and multilevel responsibilities.

To repeat, one cannot recommend any sole criterion of priority for outdoor recreation research. Some of it must be tied closely to operations; some should be conducted independently of operational concerns. Some may be inexpensive but highly useful; some may be costly but of questionable relevance. Some may be urgent; some postponable. Some must be given precedence; some can be done only when special skills are available. The point to be emphasized, however, is that no promising inquiry must be neglected. Outdoor recreation is at present an amorphous field and must, therefore, be explorative in its approach to research, even when the relevance of proposed work is not immediately evident.

D. Scope of Research

The research topics, which will be listed later, have not been assigned any particular order of priority. They cover a wide range of problems. They include inquiries both broad and narrow in scope and deal with specific and general activities, aggregates of individuals, and large systems of interaction. They consist, however, in problems whose variables and degree of generality can be identified. Thus, some progress has been made, though it is still not possible to reconceptualize the field of inquiry itself. The progress attests to the usefulness of analogical thinking, when it is applied to experience already gleaned from investigations into other areas of human behavior.

Any research into outdoor recreation that focuses on the socio-psychological aspect of the activity is likely to be concerned with variables of time, space, kinds of activities, and the nature of the information sought. These can be expressed in a series of questions, as follows: With what groups of the population is the research concerned? The groups can be classified according to:

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- social class, ethnic background, race, age, life cycle
- geographic location: urban/suburban/rural; high/low density
- existing preferences or past experiences with recreation
- primary and secondary group ties

With what leisure-time periods . . .

- weekday daytime, weekday evening and night, weekend, holiday, vacation, retirement?

With what leisure spaces . . .

- indoor or outdoor, home-based/community-based/away from home-town?

With what kinds of activities . . .

- all activities other than work, domestic chores (home maintenance, maintenance of family, maintenance of self)?
- excluding mass media?
- excluding all indoor leisure activities not involving physical exercise?
- excluding all indoor activities?

What information is required . . .

- concerning people:
 - prevailing patterns?
 - hypothetical preferences?
 - possible future patterns and preferences?
- concerning time periods:
 - present leisure time?
 - desired leisure time?
 - possible future leisure time?
- concerning space:
 - present existing space and resources?
 - space not now available but easily developed (e.g., rooftops)?
 - space not now available and difficult to develop (e.g., bathing facilities in rivers or lakes in metropolitan areas)?

In addition, it would be useful to consider research in terms of both the nature of outdoor recreation as such, and outdoor recreation in its various external or contextual settings. As a basis for devising research programs and priorities, it may be advisable, by way of illustration, to classify and clarify some economic, social, and political factors externally related to recreation. Each of the following external economic circumstances must be regarded as a significant research topic: recreation-based business and industry as an input into the productive economy; tourism as a commercial enterprise; multiple-use situations, including recrea-

tional use of a resource on a cost-benefit basis; and the staging of the recreational economy in the process of development growth.

The rise of recreation as a prime influence upon industrial-location decisions—ranked alongside the classical locational criteria of material resources, labor supply, and transportation facilities—may be particularly significant. If large-scale industry and its associated secondary enterprises are to be located on the basis of the accessibility of recreational and related amenities demanded by an affluent and relatively sophisticated labor force, as is urged more and more strongly, both industrial and recreational planning are likely to undergo distinct changes. (Another opportunity for recreation-related industrial research may be experimentation with staggered workdays and weekends.)

The various forms of public easement on or use of private lands, or the alternative tax and vending policies for the financial support of the recreation function, are similarly important subjects for recreation research.

It is in the social realm, however, that the speed and drama of development may outdistance the nation's capacity for farsighted research programs. In the recent report of the National Advisory Commission on Civil Disorders, inadequate recreational facilities ranked fifth (immediately after the neglect of education) among the deeply felt grievances of urban Negroes. An examination of current and proposed recreation policies may illuminate the extent to which recreation is employed as an instrument of conflict resolution.

On the broader scale of national policy-making, on the other hand, objective studies should be made of the alternative policy instruments for promoting purposeful change, that are implicit in new area patterns of residence or industrial location—patterns that may be significantly different from if not deliberately and diametrically at odds with previous formats. Also, research should be directed toward identifying the potential and/or alternative roles that private enterprises and public institutions might play, separately or cooperatively, in the management of various aspects of the recreation function.

A variety of research methods can be utilized in such policy-oriented inquiries, but it is possible that historical and comparative approaches will prove especially fruitful. The accumulation of long-term trend data and information derived from the experiences of other societies should greatly improve the capacity of investigators to arrive at objective conclusions in a field in which research has too often been influenced exclusively by normative considerations.*

* The relevance of these points, within the context of recreation as a service system, is discussed in Chapter 4.

E. Illustrative Research Problems

Problem 1. Demand for and Supply of Outdoor Recreation

The concept of demand for outdoor recreation in an economic sense has been elaborated with much precision in recent years; it is discussed in Chapter 3 of this report. A number of important concepts as well as specific issues might be clarified with regard to the "demand for outdoor recreation." Because of the unusual nature of recreational activity as an economic good, however, further work has to be done on aspects of *latent demand*, which enter into economic behavior in a highly complex manner. It cannot be assumed, for example, that samples of customers using facilities at given times will necessarily indicate the behavioral coefficient that will govern future participation under changed circumstances. One must also have knowledge of the people who would *potentially* have chosen to participate in such activities, but for some reason did not.

There are two possible ways, one direct and the other indirect, of discovering this demand potential. The direct method would be to conduct some sort of universal survey that would provide information about people's values, the activities in which they engage, and their preferences. The indirect approach, on the other hand, involves testing a user survey in some sort of system-simulation model that includes latent-demand pressure by implication.

The direct method can be extremely useful for identifying over-all trends such as those revealed in the National Recreation Survey. But, to be sufficiently specific and detailed for use in actual planning—the planning of an urban parks system, for example—the universal-survey method can prove inordinately expensive and time-consuming. Also, there is the added danger of obtaining unreliable responses to such questions as, "How much more would you participate in activity *A* if you had better facilities, access, time, or disposable income?"

The indirect method, in contrast, involves gathering data either on a sample of users of specific facilities or on participants in specific activities. By analyzing the location patterns of users and their socioeconomic, demographic, and other characteristics, along with the pattern of available facilities, their capacities and attractive qualities, and the pattern of access (time needed for transportation to the facility), one can draw conclusions about the *pressures*, or "true" demand levels, that have resulted in the observed patterns of *flow*, or consumption (use). By observing *what people actually do*, one avoids the problem, mentioned in the previous paragraph, of trusting *what they say they will do*.

As the tools of such analyses become sharper, criteria and measures should be established for individual as well as group differences in prizing or valuing (in noneconomic terms) different recreational activities, and differential regional patterns of recreation should be specified in terms of environmental and cultural indicators.

When projection is required to set gross levels of facility capacity, or when the effect of introducing a specified new set of facilities into a recreational system is to be tested, it is important that such latent-demand pressures, and not just measures of consumption, be taken into account.

Problem 2. The Career Aspects of Outdoor Recreation

Much can be learned about barriers to participation in recreation by considering recreation activities in the way that sociologists look at occupations: as falling somewhere between two extremes, a *career* on the one hand, a *job* on the other. A career is distinguished from a job by its distinct levels of difficulty and complexity, the mastery of which tends to be cumulative and progressive. Increasing skill and competence are accompanied by increasing responsibility and rewards (including prestige). Also, entry into a career occupation and vertical progression within it are dependent upon training, experience, and talent. At the other extreme, in a "menial" job, training, experience, and talent play only minor roles, and there is no vertical progression within it.

A similar distinction can be made with regard to leisure activities. In some cases, such as sports, hobbies, and arts and crafts, the career similarities can be clearly identified: there are beginners, intermediates, and experts. Similarly, with vocations and avocations: both have "professional organizations," journals, conferences, meetings, highly specialized equipment, and peculiar cultures and vocabularies. In other leisure activities, however, such as television viewing, one is never better at it than at the start. Most leisure activities fall between these two extremes. For some people, certain activities might seem more like careers; for others, they might be thought to be more like jobs or chores. Gardening would tend more often to fall into the latter category.

Since many outdoor recreation activities resemble careers, in that beginners can be distinguished from experts, it is suggestive to investigate the recruitment, participation, and drop-out rates for each activity, as "analogs" of questions that are familiar to occupational sociologists. For example: To what extent are different groups in the population "recruited" into an activity? On what basis do they choose their careers? How long is the chosen career pursued? Who becomes a drop-out? Who lasts until retirement age? (The analog of retirement age varies among

leisure activities; it is generally earlier for tennis than for golf, for instance.) Who has more than one avocation? Answers to such questions can help both to identify factors that deter people from ever entering an avocation, i.e., from trying a leisure activity, and to give some indication of the various barriers to participation.

Problem 3. Barriers to Participation

As indicated above, careers can be divided into distinct stages, and progression from one stage to the next depends upon the ability to surmount a series of barriers. If a positive value can be ascribed to extending the rate of recruitment among the largest possible number of outdoor recreation activities, then some of those barriers deserve more consideration than others. The most important are probably encountered at the first step—entering the activity in the first place—but a whole series of obstacles, not all of them equally worth tackling, must eventually be overcome if one is to graduate from one level, be promoted to the next, or move from beginner to expert. Five types of barriers are suggested below:

1. *Social barriers.* Activities vary in the extent to which they are the exclusive possession of particular social groups. In some, social mechanisms operate very efficiently to keep "outsiders" away. Many of the leisure activities of the English country gentleman have exhibited this characteristic. It is not known to what extent social barriers in the United States today keep Negroes, for example, or other minorities from participating in some leisure activities.

2. *Psychological barriers.* For example, fear of the unknown clouds the challenge of the unknown. Many people may reject certain activities, such as mountain-climbing, free-jumping, or water-skiing because of the apparent dangers.

3. *Financial barriers.* The relatively high price of capital investment or user charges often poses an obstacle.

4. *Geographic barriers.* Remoteness of the facilities is a factor in keeping parts of the population from entering certain avocational careers, or from pursuing them regularly—skiing, for instance.

5. *Physiological factors.* The requirement for physical or other kinds of competence can deter non-users from ever sampling an activity.

Little is known about the relative importance of each of these obstacles for any given activity and for any distinguishable group in the popula-

tion, though it is possible to discuss institutionalized modes of reducing some of them. For example:

1. *Social barriers*—Democratization: establishment of public parks, civil rights legislation, wider dissemination of information about varieties of social groups engaged in particular activities.

2. *Psychological barriers*—Advertising and training: dissemination of information and various forms of assistance to novices in getting them to overcome their initial reluctance.

3. *Financial barriers*—Commercialization and subsidies: Reduced prices as a consequence of mass production of leisure equipment, as well as the establishment of highly diversified product lines, have enabled users at all levels of skill to purchase appropriate equipment.

4. *Geographic barriers*—Low-cost transportation.

5. *Physiological factors*—Simplification: the development of educational and commercial "crutches" for the novice and the unskilled to reduce the physical entrance requirements—e.g., rope tows in skiing, painting by number.

Problem 4. Research into Values

The values and preferences of individuals concerning different kinds of recreational activities, the goals they want to achieve, their basic orientations, attitudes, and inclinations, all deserve intensive study. At the same time, and especially because of its almost total neglect in the past, there is also a need for research on certain kinds of "collective" values.

Values implicit in current decisions on allocation and other policies affecting outdoor recreation can be identified in several ways. Analysis of written documents, including justifications for policies and decisions, is one approach. Value structures may be implied by the application of different degrees of permissiveness or sanction in the administration of recreational facilities. Differences between the values of managers and of various classes of users help explain some despoiling behavior. Different definitions of "proper use" may obstruct agreements on what is to be regarded as permissible, and may also interfere with the design of effective measures to prevent abuse of recreation resources.

Research on organizations, including interviews with personnel at various levels of authority, can also be revealing. Listed below are some questions that may help to uncover the explicit and the latent values that influence recreation-policy decisions:

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1. What organizations are most influential in shaping recreational policy? The reference is to voluntary organizations of various kinds (e.g., the Sierra Club), commercial organizations, and governmental agencies.

2. What are the main characteristics of the personnel and members of organizations and agencies devoted to outdoor recreation? The data here include patterns of recruitment and promotion, types of educational background, socioeconomic status, race, regional distribution of place of birth, etc.

3. What are the value assumptions shared by personnel and members within different organizations? These assumptions may concern (a) increased use versus preservation of existing facilities for future use (or permanent non-use); (b) opening up facilities to new and different kinds of users; (c) artificial versus natural resources; (d) beginners versus experts—awkward users versus skilled users; (e) weekend versus long-time users; (f) man as an intruder into the majestic state of nature versus nature as a recreational and commercial resource; and (g) the definition of vandalism as ordinary usage by large numbers of users versus deliberate maliciousness.

Problem 5. Prediction of Recreational Needs Employing Participation Data Experimentally

Participation data are used in assessing the relative success of various outdoor recreation resources and in projecting requirements. Analysis can show the relation between user characteristics and alternative recreation opportunities. On the other hand, projections based on participation data are of limited value to the extent that they neglect non-users who, under conditions of better information, social and economic access, different types of opportunities, and the like, would become participants.

Considerable work has been done on recreational land use and on the patterns of recreational travel into and within given regions. Although the information collected has been largely geographic in nature (where the resort areas are located, where the people who use them live, the inferences that can be drawn on the basis of the movements of various types of people among various origins and destinations having specified characteristics), valuable evidence has been gained indirectly about psychological needs and desires and the various investments people are willing to make to fulfill them.

One such study, carried out in Ontario, Canada, began with a comprehensive inventory. It asked: Where are the summer cottages, the provincial parks, the commercial resorts? How many people visit each, from where, and for how long? What do they do when they get there—the

preschool children, the grandparents, the blue-collar workers, the college graduates? The inventory was first stated in tabular form, then in the form of maps and charts of increasing complexity and depth. In the next stage, mathematical models were fitted to the data, and parameters of recreational travel were tentatively established. Finally, new techniques were devised for classifying recreational areas according to the types of people who used them and the types of recreational activities that took place in them. From knowledge of where people go for recreational purposes, and what they do when they get there, a tentative effort was made to deduce their needs, attitudes, and motivations. Moreover, knowledge that certain classes of people do not go anywhere or do anything was used to lead to equally useful deductions. For example:

Assume two lakes, identical in all important respects except that motorboating is allowed in one and forbidden in the other. Where motorboating is allowed, there are 200 people using the recreational opportunities provided; where it is not, there are only 50. One might infer from these figures that, in the total population of 250 people, 80 percent wished to avail themselves of the opportunity to go motorboating, whereas 20 percent would rather be free of motorboats. Now, assuming the identical initial population of 250 people, change the conditions so that only the lake on which motorboats are prohibited is available. The original 50 people will be found at this lake. Planners note that it is used to capacity and decide that the other 200 people should also be provided with a lake on which motorboating is prohibited. They open another lake of similar size and find that an additional 50 people are using it. They thus congratulate themselves that they have satisfied a demand. And so they have, for the lake is being used. But this use is only a substitute for the use that is in real demand, i.e., motorboating.

Change the conditions once more: Do not provide easy access to *any* lake for these 250 people. Then note the trouble they are willing to take in order to satisfy their desires. If one finds that 50 people travel 150 miles in one direction to reach lakes where no motorboating is allowed, and 200 travel 250 miles in another direction to reach a lake where it is permitted, one can reasonably infer that, *in this very special case*, participation is an adequate index of demand.

Problem 6. Recreation and Social Pathology

Research is needed to gain an understanding of any therapeutic functions that recreation may exercise, and to determine what effects it may have on social deviance, ill health, etc.

Since recreational facilities that are provided for the purpose of re-

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ducing the incidence of social deviance are unfortunately those most likely to be exposed to misuse, the trade-offs expected in the provision of such facilities require clarification. Work is also needed on the problem of defining what constitutes misuse of recreational facilities, and of determining the extent to which such dysfunctional behavior is attributable to psychological, social, or environmental factors.

Problem 7. Methodological Inquiries

A number of urgent methodological problems must be studied in order to improve the quality of outdoor recreation research.

DEVELOPMENT OF VALID INDICATORS A number of measures are used to describe individual participation in a leisure activity: time allocation, money allocation, expressed preference (absolute and relative), hypothetical preference given infinite/finite choice, quality of performance, level of enjoyment. In addition, various indices have been developed, such as the "euphoria index," the "comfort index," the "ability index," and the "inclination index." But such measures, applied to a person's present, past, and hypothesized future use of a recreational opportunity have not been examined critically in order to identify their correlations, overlaps, and substitutability. There are intuitive connections between, for example, time commitments, psychological involvement, competence, and enjoyment. Yet, there are also many atypical cases—people who spend little time but enjoy an activity greatly, and vice versa; people who spend relatively more time but less money; and the like. Further investigation into these over-all patterns will help in clarifying measures of the general concept of participation.

DEVELOPMENT OF VALID INDICATORS FOR RESOURCE UTILIZATION Aggregated measures of attendance—visitor days, subscriptions, and box office receipts—though relatively easy to obtain, cannot be disaggregated, which is a drawback. The conditions under which one or another kind of resource-utilization measure is appropriate should be explored, and the discrepancies between individual and aggregate measures should be identified. More concretely, since use of any outdoor area or facility by an individual visitor or group presupposes travel, time, and/or money costs, it can be argued that the use of a specific activity is purposeful. Visitor studies are currently receiving a great deal of attention as one method of providing information that is useful in making planning decisions. In their least sophisticated form, such studies (often termed "on-site" studies) provide attendance data by counting numbers of visitors.

Hand-tallies, eyeball estimates, parking-lot occupancy rates, admissions, toilet flushings, and traffic counters are all employed with various conversion factors to estimate total attendance. The counting of visitors also provides information about the distribution of visits by time of day and week, thereby providing insights into peaking and overload problems. At the same time, more-complex studies dealing with disaggregation of single visits into a number of component parts are being carried out. For example, a family of four arriving by automobile at a recreation area may, in the course of a single afternoon visit, engage in all the following activities: swimming, sunbathing, wading, picnicking, boating, fishing, water-skiing, playing baseball, and other athletic pursuits. Some recent studies have thus employed "activity occasions" as an alternative to "visitor day" as a measure of user-loads on available facilities.

STANDARDIZATION OF MEASURES The growing body of research on recreation makes development of standardized questions, categories, and criteria increasingly important if the various studies undertaken are to be comparable. Ways should be found, however, of promoting such standardization without destroying the trend comparisons that are now possible within the various continuous research inquiries. Related to this activity, at least in other areas of the social sciences, has been the development of a central facility that keeps track of past and current research, that can be used as a data archive facilitating secondary and comparative analysis, that can develop methodological and computational (including computer-programming) techniques, and that can serve as a research facility for students and researchers in the field. Such an analysis center and data bank should be considered for outdoor recreation research.

3

the economics of outdoor recreation

A. Introduction

Many will argue that outdoor recreation has become a concern of public policy because of changes in socioeconomic variables that have led, in turn, to increases in the demand for outdoor recreation. Actually, however, such increases in demand are a matter of public concern because of the heavy involvement of public institutions in the allocation of outdoor recreational resources. Many other goods or services have undergone a similar shift in demand without requiring explicit treatment by public-policy-makers; the adjustments required in the allocation of the needed resources were signaled by market forces and carried out by private economic units.

Reliance on nonmarket institutions in the allocation of recreational services, far from being accidental, is often a direct consequence of technical conditions that prevent the operation of the market from achieving an "economic optimum." Three of these conditions should be mentioned briefly as having special relevance to the design of a policy-research program for outdoor recreation.

The first arises from the fact that for some services indivisibilities are present in their production or declining average costs—for example, the extension of a road network into a forest area or the construction of a reservoir to provide recreation. Marginal costs in such cases are lower than average costs, and marginal cost pricing, which is required for the determination of an efficient output, will not cover the full costs of pro-

duction. Hence, reliance on the market will not bring forth the required output. Public-utility regulation is an example of how this problem is managed in another area of the economy.

The "public good" nature of many services is a second reason why market operation is unacceptable in outdoor recreation. If one person's consumption of a service is not to reduce the quantity left for consumption by others, levels of use have to be kept below the threshold at which the effects of "crowding" become noticeable.

A third reason for public action is the existence of "technological externalities." They exist when the decision of one individual either to produce or consume will have an effect, either negative or positive, on the production or utility function of another individual, but the effect is not taken into account in the calculus by which the first individual arrives at his decision. For example, use of a recreation facility by one person may have the negative effect of crowding another person. As an example of a positive effect, on the other hand, a high-density use of a facility may bring a benefit to society that compensates in some sense for the reduction in value that such use entails for any given participant.

Economic research is useful to decision-makers to the extent that it assists them in evaluating policy alternatives in terms of economic benefits and costs. Accordingly, in the following pages, consideration is given to some of the research problems associated with these topics: the demand for outdoor recreation, the supply of recreational service, the pricing of those services, and the public funding for them. It will be noted that in all these areas, research is challenged not only to provide information for decision-making within a diversity of given institutional structures, but also to generate data on the basis of which alternative institutional approaches can be designed and evaluated.

B. Research on the Demand for Outdoor Recreation

The term "demand" does not have the same meaning for everyone. As noted earlier, it has often been used in recreation planning in a non-economic sense as a synonym for "consumption"—for example, in the projection of facility-use trends over time to estimate "future demands." Obviously, such estimates are relevant only to a very narrow range of policy problems. From an economic viewpoint, their use implies either that economic considerations are irrelevant or that the inclusion of economic considerations in the analysis would not in any way alter the conclusions. The latter assumption would be made explicit by the asser-

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tion, for example, that the commitment of additional resources to outdoor recreation will always yield greater social benefits than if the resources were put to another use.

Within the context of economic theory, the term "demand" has a more sophisticated meaning. It refers to the functional relationship between the quantity and price of a commodity, while "demand analysis" refers to the empirical estimation of that relationship. The consumer maximizes his "utility" by allocating his consumption among various commodities, depending on his preferences, his available resources, and the prices of the various goods and services.

The demand relationship thus specified has several applications. It permits derivation of an economic value for a service, which can then be compared to the cost of providing the service and will thus serve as a criterion for resource allocation. The relationship between price and the quantity demanded also has a direct application to alternative pricing policies and, by defining the relationship between the quantity demanded and income, to analysis of a service seen as a tool for income redistribution. Finally, the framework makes explicit the considerations on which predictions of future demand must be based.

While this analysis of consumer behavior ought, in theory, to be as applicable to outdoor recreation as to any other commodity, the empirical application turns out to be more difficult. The market mechanism is not used for allocating many outdoor recreational services, so that examination of market prices is not possible. As a consequence of the work of Clawson, among others, however, it has become possible to introduce costs incurred by recreationists as a proxy variable for price. Four extensions of the work started by Clawson represent the current state of the art.

Much work has already been done using demand models. The progress to date suggests that these models should be systematically extended to cover a greater degree of specification. Of most immediate applicability is the incorporation of sociological and demographic variables, and efforts toward this end are currently under way. However, the approach has tended to be too empirical to permit the drawing of any general conclusions. It appears that sociological variables are being introduced into the models less because of logical considerations than because of what is currently amenable to measurement. The cooperation of economists and behavioral scientists is needed if more-specific prediction models are to be developed to show the demand for outdoor recreation activities and facilities in terms of quantity, quality, and location as a function of users' location, numbers, social characteristics, and psychological needs.

Research on the measurement of demand can result in two kinds of techniques: *either* the construction of economic-demand functions that take critical account of the fact that the "good" of recreation is far from homogeneous, that the pricing mechanism is quite ill-defined, and that a large part of the "price" of the good is represented by the time spent and transportation required to get to the place where it is consumed; *or* a systems-modeling technique that, while not necessarily expensive, might require considerable patience before an adequate model could be devised. Subsystem models, however, (e.g., concerning campers, resort guests, or city park use) are readily obtainable and can be of immediate practical use to planners if they can indicate latent demand pressure and actual consumption flow.

Another related shortcoming of the demand models now in use stems from the fact that the underlying physiological or psychological needs served by various types of outdoor recreational services are not sufficiently understood, which makes it difficult to specify the kinds of outdoor recreational services that might be substituted for each other. The question of substitutability requires both theoretical and applied research, the results of which are likely to have a great impact on public policy. For example, if it were found that the value that is ascribed by consumers to a certain recreational experience remains the same whether the experience takes place in a real natural environment that could be easily destroyed by use, or in a simulated natural environment, a comparison of the costs involved would permit selection of the cheaper environment. For purposes of institutional planning, it would be important to determine to what extent recreational services that are now for the most part publicly provided are replaceable, as far as consumers are concerned, by others provided commercially or by individual consumers themselves. A few of the many examples that could be cited are discussed below in connection with supply.

In pursuing any of these lines of research, however, it must be borne in mind that the development of information required by the methods of demand analysis commonly employed is an expensive process. Furthermore, the results obtained are usually very specific to a given type of recreational activity and user group. The best approach, therefore, at least initially, would be to aim only at generating short-term predictions of recreational activity based on projections of other socioeconomic characteristics. Moreover, the likely payoff will be greatest if, instead of conducting empirical demand studies for their own sake, the studies are designed to provide information on specific, significant policy problems, such as conflicts between recreation needs and other resource uses like forestry, pollution abatement, and agriculture, to name but a few.

C. Further Extensions of Economic-Demand Analysis

The scope of economic models of recreation demand must be broadened if they are to take into account current developments in related areas. Estimates are needed, for example, of the impact on recreation demand of a substantial change in income distribution, which might follow, for example, from some form of negative income tax or guaranteed annual wage. Models must also be extended to include the greater extrapolation ranges of general economic variables.

The "leisure-time budget" is another new variable of importance for determining the future demand for outdoor recreation. The theory of consumer behavior permits its inclusion in an analysis, as well as the income constraint, which is generally used in demand analyses. However, attempts to include travel time in empirical models have largely been unsuccessful because the high correlation of travel time with the price variable makes it impossible to interpret the statistical results. Research is needed on this subject also. Since projected future increases in incomes are higher than those in leisure time, the time constraint may become much more important than it is now. Some empirical estimates of the time-quantity relationship would be very helpful for making projections of future outdoor recreation demand.

D. Research on the Supply Economics of Research-Oriented Recreation Services

The National Recreation Survey, conducted during the term (1958-1962) of the Outdoor Recreation Resources Review Commission, furnished the first comprehensive inventory of lands and on-site facilities available for resource-oriented recreation services in the United States. It has been supplemented, importantly but not uniformly, by state and other agency inventories in many areas. These combined inventories constitute a substantial part of the existing knowledge about our resource-oriented recreation services, but, for purposes of the economic analysis of supply, they fall short of meeting even minimum informational needs in at least three respects.

First, adequate assessment of a supply situation requires some appraisal of the economic costs incurred in making the resource available for recreational use. A portion of these costs is made up of the administrative and maintenance expenses incurred in providing recreation opportunities. Other (and probably larger) portions include the opportunity costs of devoting the resource to recreation rather than to

other uses, deterioration in resource quality because of such use, and economies and diseconomies external to the recreation site that arise as by-products of recreation use. There are also the opportunity costs associated with rival recreational uses for the same site. For example, where water is suited either to swimming or water-skiing, a real cost of either use is the foregone value of the other use. The costs in any of these categories can be expected to vary significantly from site to site and with intensity of use on a given site, yet no systematic and comprehensive analysis of such costs has been made, and certain methodological problems will have to be resolved before making them.

Second, existing information on the inventory of resource-based recreation services does not permit an assessment of the potentials for expansion. Obviously, for many categories of such recreation, these potentials are great, but little if anything is known about the costs of developing them.

Third, in order to measure adequately the economic costs of supplying resource-based recreation, standards of resource quality must be established and controlled. Without them, deterioration in resource quality (and thus part of the cost) cannot be evaluated. The quality considerations in question here are those that affect the value of the recreation services to the user.

Time will be required to develop the methods of research and the information needed to answer these three types of questions. However, research in the area should not be deferred until the methodological problems have been solved. On the contrary, currently recognized problems should be organized and addressed in such a way that the over-all research program will contribute to a solution of the more fundamental problems of methodology.

Examples of some of the problems that might be addressed by such a program are outlined below. In most cases, localized studies will be required because costs may be strongly influenced by geographic location and type of recreation use.

1. The Costs of Supplying Resource-Based Recreation Services

Comparative studies should be made of the costs of administering and maintaining resource-based recreation services under different types of administrative organization, including public agencies as opposed to private concessions. Such studies should, in general, analyze the supply of alternative recreation opportunities to show costs of labor and management skills, manpower training, and capital investments no less than the commitment of natural resources. Appraisals of the value of recrea-

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tion sites when used for nonrecreational purposes should also provide illuminating economic insights. The impact on local tax revenues or subventions of shifts of land into or out of recreational use should be investigated, along with the factors that tend to bid up the price of recreation areas earmarked for public acquisition. Techniques should also be sought for minimizing the inflationary components of such transactions.

In addition, since significant economic costs are doubtless incurred through depletion or erosion of the quality of recreation resources, attention should be given to the costs and relative effectiveness, under different forms of recreation, of various techniques for the maintenance of site quality, such as fertilization, irrigation, cover modification, rotational use, and prescribed burning. The comparative durability of different types of vegetation when exposed to different kinds of recreational activity is another important factor affecting resource depletion. (For a more detailed discussion of economic and social factors affecting the management of rare and irreproducible natural resources, see Chapter 4.)

Finally, research is needed on the "external" economies and diseconomies associated with the use of rural land and water resources for recreation. Specifically, investigations should be conducted concerning (1) costs of protecting resources from fire, insects, disease, and water pollution; (2) economic consequences of fire closures in recreation areas; (3) modifications that might be made in the design, operation, and maintenance of road and other transportation systems in order to maximize the benefit derived from outdoor recreation, while coordinating resource uses (see also Chapter 4); (4) effects of recreation development and use on assessed values and taxation of adjacent forestland maintained for other purposes; and (5) how zoning, tax limitations, and other legal devices can be used to ameliorate the adverse impact of recreation development on alternative land uses, and vice versa.

2. The Economics of Supply Expansion

Economic criteria must be devised for use in establishing priorities in the acquisition and development of land for recreation and for estimating the costs of providing transportation and on-site facilities for underdeveloped areas. Work should be done on the relative costs of alternative techniques of development (e.g., tramways versus roads for intensive-use areas; helicopters versus trails for access to wilderness) and on the costs and potential value of technological innovations that might facilitate multipurpose use of resources (e.g., logging by balloon or helicopter to permit recreation opportunities and production of timber in the same area).

Last, but certainly not least, much more must be learned about the ways in which subsidies, tax rebates, and other incentives can be used to encourage development of recreation facilities on private land, as well as about the ways in which such development can be hindered by existing liability laws and similar institutions.

E. Research on Benefits, Pricing, and Implications for Funding

Under a condition that is common, but by no means universal, prices play a role in the allocation of productive resources among competing ends in an economy such that the economy produces the highest-valued composition of goods and services of which it is capable. Under this condition, no individual can be made better off without simultaneously making another less well off; in short, *no gain in output is feasible*. (This condition is hereafter referred to as an efficient resource allocation, or merely economic efficiency.) But in any particular case, the pricing policy required for achieving this end, with or without an associated decision to recover full costs, will depend on the particular ways in which the goods in question are produced and/or distributed, as well as on the circumstances of the consumers.

Briefly, in a perfectly competitive economy (with a distribution of income that is acceptable to the community), the prices of factors of production measure their opportunity costs—namely, their value in alternative uses that have been foreclosed by the application in question. The prices of consumer goods measure, simultaneously, the cost of producing them at the margin and the marginal valuation of their use in consumption. With such an equilibrium, no reshuffling of resources could improve any person's position without adversely affecting another's; that is, there is no possibility of increasing output through a more efficient allocation of resources.

When conditions of production, distribution, and/or consumption depart from those of a perfectly competitive market, various factors enter into the consideration of pricing policies and funding operations. This holds true whether the goods are consumer goods or intermediate products. The new factors are briefly summarized below.

1. Indivisible outputs and the public-goods case

A perfectly competitive market presupposes that the output of a productive activity is divisible into units that are in some sense packageable or

measurable. If, on the other hand, the output is such that it cannot be delivered to one individual without simultaneously delivering it to all within the relevant group without possibilities of exclusion, pricing is neither possible nor, of course, efficient. Air-pollution control would be one example; water-quality management for recreational purposes is another. When pollution abatement is undertaken, the service blankets all "consumers" otherwise adversely affected, but is not subject to packaging so as to exclude all who would fail to pay a price. Moreover, consumption by one individual does not result in any diminution of the service available to others. In short, once the service is delivered to one member, the marginal cost of pollution abatement for any other individual of the group is zero. Since there is no additional cost, the price, which under the condition of perfect efficiency must equal the cost, is also zero. Funding of the service, therefore, cannot be done by, say, revenue bonds secured by receipts estimated by way of pricing, but must be provided by public taxation or special levies.

2. Indivisible input and the falling-unit-cost case

If the production of some good or service involves an input that is not readily divisible, it may happen that the scale of production, which combines the indivisible input with other factors, is very large in relation to the market to be served. A price that would recover full costs may leave a large part of the capacity underutilized. As long as additional users are willing to pay an amount greater than only the marginal costs, there is the possibility that individuals can be made better off without others being made worse off, for no one is excluded from consumption by virtue of the additional consumers using the excess capacity. The efficient pricing policy, then, is one that charges a price equal to marginal costs, but that may not recover full costs. Here, too, if the efficient pricing policy is observed, the funding of the service in question cannot rely entirely on prices to provide the financial basis for investment. Other-than-private means (taxes, special district levies, or other instruments) are required if efficiency objectives are to be realized.

3. Spillover effects or unappropriable third-party benefits

When an activity undertaken to supply a service to a clientele happens at the same time to supply by-product benefits to third parties, the supplier may find that the total benefit is not appropriable by him. At times, the appropriable benefits fall short of covering the costs, or the scale of the activity is inadequate because the unappropriable by-product values are

not relevant to the entrepreneur's decisions. Extra-market means are then required if the efficient scale in output is to be reached. Compulsory public education to a given level is considered to be an example of such an activity, since the entire community is believed to gain from being made up of literate, well-educated individuals. When similar externalities, spillover effects, or unappropriable third-party benefits attend a given type of outdoor recreation, financial assistance could properly be provided out of public funds.

4. *"Merit-wants"—gratification should be divorced from ability to pay*

Perhaps an additional situation that is incompatible with a competitive market price involves a class of goods or services that are regarded as so meritorious that they should be available to all citizens, unconstrained by income considerations. Whereas in the spillover case emphasis is on the beneficial side-effects that certain goods have for others in society, here the goods and services themselves are regarded as being such that they enrich the lives of all who consume them and, therefore, should not be denied to any individual for want of the means to pay. According to still another rationale for public education, the community, wishing to provide certain minimum standards of consumption of a range of commodities for disadvantaged groups, rejects the prevailing distribution of income and chooses to redistribute it by way of public education rather than by some other alternative—say, negative income taxation. If outdoor recreation should come to be viewed as such a merit-want, funding would, of course, have to be provided by means other than pricing.

5. *Exorbitant cost of collecting user fees*

Finally, there may be conditions under which the administration of a system of admission fees, user charges, or prices would be so expensive that charging an admission fee would be inefficient. Consider the case of multiple informal points of back-packing entry into a wilderness area or park, which would require more "gate attendants" than would be justified by the revenues collected. While pricing is theoretically possible, access as a practical matter is not subject to the exclusion principle. Thus again, the provision of such recreational environments must be funded by means other than such revenues.

In summary, much outdoor recreation falls within one of the five cases outlined above, in which funding based on pricing alone conflicts

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with efficiency goals, principles of equity, or prevailing notions of the minimum consumption standards of various segments of the population.

Another set of difficulties stems from the larger question of whether policies adopted in an earlier period of the nation's development are still relevant. In the past, facilities in the vast new parklands could accommodate many additional visitors without congestion. Today, in specific parks and specific places, questions inevitably arise. Are the marginal costs truly below the admission fees, or has congestion brought conditions in which the cost of an additional visitor at a specific time is grossly larger than the fee charged? To what extent would increased fees at the more intensively used places redistribute visitation to other places? Would such peak-load rationing through pricing obtain enough revenues for funding the needed additional facilities? In attempting to answer these questions, experiments with pricing policies might well be conducted at recreation areas where serious congestion already exists. Such experiments will also offer an opportunity to enlist the cooperation of park and recreation-area managers in the research.

Another question to be investigated concerns the use of public-park and public-recreation-area pricing as means of achieving a more rational distribution of recreation facilities between the private and public sectors. When a significant proportion of these facilities is supplied by the private sector, what is the influence of public-sector pricing practices that do not cover full costs? To what extent would the adoption of full-cost pricing in the public sector permit private entrepreneurs to participate? Under what circumstances would one expect an increase in the supply of recreational resources, and what would this imply for the efficiency of the system? Conceivably, if prices were charged to recover full costs, a significant number of the people who patronize such facilities at zero marginal prices would withdraw their patronage, and one could quickly determine whether the value placed on these facilities by significant numbers of users might be below the cost of providing them.

Other questions of interest concern the merit-want rationale. To what kinds of recreational facilities and under what circumstances is this rationale applicable, and to what kinds of facilities, under what circumstances, is it patently irrelevant? Given the apparently insatiable demand for outdoor recreation facilities and the serious difficulties encountered in funding their acquisition, does it make sense to levy no charge for the use of large recreation-area reservoirs and boat-launching ramps on the grounds that the enjoyment of expensive power boats is a merit-want that should not be discouraged by a full-cost pricing policy? Should a user fee be considered for admission to various new types of facilities in

the inner city? Are not pricing policies being determined as though the merit-want rationale were universally applicable, whereas it is really appropriate only under highly specialized circumstances?

Similarly, with the spillover effect, what is the evidence that access to outdoor recreation, like access to education, has a large, beneficial spillover effect that justifies its provision at public expense? Could such evidence be considered to justify compulsory outdoor recreation as it does compulsory education? What tests can be devised, or how can the alleged social benefits of outdoor recreation be stated in the form of a refutable hypothesis? And what implications would the test results have for pricing, funding, and efficient program administration?

F. Special Problem Areas

The interaction between the private and public sectors in providing outdoor recreation services is the locus of many policy problems. A number of pertinent research questions connected with the economies of supply and the structure of pricing and funding have already been touched upon in this chapter. They include the exploration of incentives to increase the role of private resources, such as zoning reform, tax relief, and long-term leasing of land or facilities. Also mentioned were insurance and loan arrangements specifically tailored for inner-city recreation enterprises, as well as the use of pricing to establish demand measures related to the nature and quality of the services provided.

To these must be added a number of institutional and legal issues. Alternative institutional arrangements will have to be studied, and the most promising ones subjected to experimental evaluation. These alternatives should reflect the full range of possible degrees of administrative assistance in the private development and operation of recreational facilities, as well as the possible range of public controls in the interest of meeting and complementing public objectives. In addition, there are legal questions of indemnity and liability incident to providing recreational access to private lands and waters. In this context, an analysis of precedents for cooperation between private organizations and public agencies, especially in European countries, might prove valuable.

Another area requiring economically oriented analyses is the development and operation of suitable facilities in urban areas. Very little research has been done on the economic benefits of such facilities. The existence of "technological externalities," however, precludes the direct consumer-behavior approach outlined above. Research is first needed to identify these externalities. For example, it has been suggested

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that outdoor recreational facilities in low-income urban areas can make significant contributions toward prevention of crime or improvement of mental health. Empirical work on a sufficiently large scale is needed to test these arguments.

Once the presence of a technological externality has been demonstrated, economic analyses will be needed—in terms, again, of the previous example—to compare the productivity of recreation in reducing crime against the benefits to be expected from better law enforcement, better medical facilities, or simple transfers of income. Research of this kind, as suggested by Samuel Klausner in Appendix A, should improve the efficiency with which recreational facilities are expanded in low-income urban areas.

4

the operation of recreation service systems

A. Introduction

More than 80 federal agencies, as well as the 50 states, and some 4,000 contiguous or overlapping local, metropolitan, and regional authorities, bear responsibility for the provision of recreational services. Each of these governmental units, moreover, formulates its goals and objectives, and conducts its operations, relative to its own legislative enabling acts, constituent pressure groups, demonstrated needs, expediency behavior, and adopted idealisms. Private institutions provide another large portion of recreation services. Though recreation is not now listed as an industry in national statistical reports, it is estimated to be among the top five in size and, like its public-sponsored counterpart, it is composed of fragments that vary in size from airlines and hotel chains to hot dog stands and miniature golf courses. It has many large industrial components—transportation, equipment manufacturing, communications, housing—and is integrated at various points with other branches of industry.

From a public-policy point of view, outdoor recreational opportunities are provided for the various segments of the population with certain major goals, explicitly or implicitly stipulated, in mind. These goals are established for the purpose of ensuring that the broadest range of recreational needs are being met, from mass recreation at one end of the spectrum to a variety of special recreational preferences at the other. Moreover, they are intended to establish a sound relation between social benefits and social costs, offering appropriate profit incentives to private enterprise, while exercising foresighted stewardship of the unique scenic,

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historic, and cultural wonders that form the setting for many outdoor recreation activities. Economic problems that arise in this context at the interface between public policy and private interest have already been identified as research targets in Chapter 3.

In their full scope, the research areas requiring discussion at this juncture must cover the following: (1) resource allocation and activities development in relation to user preferences; (2) instruments for expanding the supply of opportunities; (3) quality maintenance and the management of rare and irreproducible resources; (4) the organizational requirements for effective planning, coordination, and administration of services; (5) systems of access; (6) providing the public with information about opportunities; (7) outdoor recreation data bases; and (8) education and training requirements to meet future professional and managerial needs.

It is imperative that research approaches in these areas be conceived in terms broad enough to include social invention and experimentation with newly conceived policy and program alternatives, no less than with the analysis of existing ones. Indeed, it is necessary to consciously and deliberately design experimental programs to offer the opportunity for experiments that should be closely monitored and evaluated over time. A list of subjects for experimentation includes:

- new activities designed specifically for particular segments of the population
- vacation centers where the previously uninitiated would have opportunity to sample various recreation activities of the "career" sort (see Chapter 2, Section E, Problem 2)
- educational camps for children—institutions that have tended in the past to be privately rather than publicly operated
- new schemes for the organization of patterns of discretionary time, e.g., staggered weekends and vacation periods
- establishment of micro-wilderness areas and "play farms" in or near urban centers

B. Resources Allocation and Activities Development in Relation to User Preferences

Given the fact that in the nation today, recreation services must be provided for large portions of an increasingly urbanized population, Chapters 2 and 3 of this report have urged the importance of under-

standing the meanings that various recreational experiences have for different types of people and of assessing the extent to which such experiences are or could be sought by sizable segments of the populace. Once such behavioral and economic information is available, however, there remain the tasks of projecting local, regional, and national needs in terms of population desires, and of relating those needs to the resources available. Toward such an end, *resource inventories* might be variously related to needs within a fixed geographical district during a specific season of the year, under given conditions of travel time or cost of access, or relative to what is required to preserve a predetermined ecological balance. Programs for prearranged access to recreation sites could be explored and needs continually re-evaluated within regular time periods. In addition, as the sophistication of such analyses advances, the experimental development of computerized recreation-services data systems should be attempted to provide current information about the balance between available resources and the recreation requirements of progressively more extensive segments of the society.

Similarly, experimental activity programs should be designed and evaluated in relation to the socially and culturally defined preferences and meaning systems of different elements of the population. The economically disadvantaged are singled out for special attention because of the important social problems generated by the conditions under which they live, but, in addition to the income criterion, target groups should also be selected on the basis of age, sex, social class, and geographic (rural/urban) location.

Research to develop criteria for the allocation of space and facilities, and for the selection of activity programs, should focus on considerations such as the following:

1. Survey instruments must be developed for identifying the many varieties of recreational activity and their meanings to and the demands for them among the various segments of the population (see Chapter 2, Section B).
2. Sample populations must be exposed experimentally to different recreation experiences, involving different combinations of resources and activities, and their responses assessed as indicators of meanings and preferences.
3. Projections must be made using measures of meaning, preference, resource availability, and intensity of use or participation.
4. Differential models must be devised to simulate the operation of recreational facilities and programs as social-service systems.

C. Potential for Expanding the Supply of Recreational Opportunities

The possibility of adding to the space now available for recreation, either through the development of new resources or through alternative uses of existing ones, requires systematic exploration. As the population becomes larger and increasingly mobile, and as the nation's urban concentrations continue to expand, the rising demand for outdoor recreational opportunities must be met without doing irreversible damage to the fragile ecologies and unique natural resources that still remain in their virgin state. A list of space-creating possibilities that merit investigation might include:

- The imaginative use of solid wastes to build hills and extend shoreline areas, and the reclamation of polluted waters and lands for recreational use.
- Creative application of new technologies (e.g., snow-making, night-lighting) to expand opportunities to use existing resources. Study should also be made of user responses to such technological innovations and the effects these innovations have upon recreation fads and fashions.
- Construction of new Disneyland-type centers.
- Introduction into urban areas of new types of recreation that are highly economical in their space demands and that thus allow non-recreation areas (e.g., streets and rooftops) to be turned into adequate outdoor recreation spaces.
- Multiple or combined use of natural resources for both recreational and nonrecreational purposes. The ecological, legal, and social constraints upon such arrangements require systematic study.

D. Quality Factors

It is necessary to recognize that quality factors are important psychological, social, economic, and physical determinants of the optimum enjoyment and use that can be derived from outdoor recreation spaces and facilities. Only inadequate information exists about what constitutes quality as it relates to such diverse elements as ecological and historical or cultural integrity, use-density relationships, and planning-design effectiveness. As suggested in Chapter 2, subcultural perceptions will probably be found to exert an important influence upon individual and group estimates of quality factors.

1. Ecological Factors and Land Use

The lands used, or potentially usable, for resource-based recreation are extremely diverse in character. Within each geographic region, different tracts of land display marked differences in topography, soil type, vegetational cover, resident fauna, relationships to bodies of water, and other characteristics that may strongly affect their adaptability to recreational uses. A moderately dense or semi-open timber stand, growing on light, well-drained soil, and well stocked with understory vegetation, provides conditions for overnight camping that are, in most cases, preferable to those offered by dense timber standing on heavy, wet soil with little screening undergrowth. On the other hand, lands may be affected differently by different kinds of recreation use. While a moist meadow bottom and an adjacent, drier, grassland formation may provide equally pleasing locations for trail riding, the former will suffer more damage from trampling.

Some knowledge about these resource characteristics is, of course, necessary in order to plan for effective short-term use and management of individual recreation areas. But, in a broader context, these same characteristics arrayed in one form or another also define and limit the mix of recreational services that any resource can produce over time. On the one hand, they prescribe the carrying capacity of an area for each of the various kinds of recreational services it might possibly accommodate. On the other hand, they influence strongly the real costs of producing such services, whether those costs are incurred in the form of expenditures to maintain resource characteristics in the face of constant use, or in the form of resource depletion (i.e., a change in resource characteristics).

Where the use pressures on a resource are low, the costs of ignoring its special characteristics may be minimal and may not merit much attention. But they become increasingly important as these pressures increase, for they affect not only the efficiency of facility management and operation, but also the efficiency of land-resource allocation as a whole. Thus, if systems of recreational land are not efficiently designed from the standpoint of resource capability, as defined by the different characteristics of the resources themselves, other potential or competitive uses will be prejudiced unnecessarily. The accelerating tendency to assign land to recreation—particularly in areas where pressures for its commitment to alternative uses are intense—suggests that high priority should be assigned to research on the different characteristics of land resources and on comprehensive indices of recreation-site quality.

As a first step, research on this problem must classify the individual types of resource-based recreation. However, the site characteristics required, for example, by camping, and those that make a site suitable for hiking or sightseeing, are clear enough not to delay the search for characteristics that would permit evaluation of site quality in terms of a combination of these uses.

As suggested earlier, a regional approach is also indicated. It would probably prove more difficult and less fruitful in the long run to try to correlate resource characteristics with recreation services for the nation as a whole than to do this for smaller geographic regions. Indeed, in view of the predominantly regional or local character of demand, regional indicators may be all that is needed.

In assessing the quality of a particular type of resource, specified as to both geography and type of use, research must be carried out in three steps. The specific attributes of the resource type must be identified first. In selecting such attributes, the primary criteria should be (1) high correlation with human perceptions of the resource as an environment (e.g., light intensity, temperature, relative freedom for locomotion and vision, functional relation to the use in question), and (2) high correlation with user impacts on resource ecology (e.g., soil compaction or vegetational vigor in campgrounds and hiking areas).

The second step is to test the degree of correlation between selected resource attributes and user responses to them. Ideally, individual units in an array of resources (campgrounds, for example) will differ from one another in measurable amounts of each attribute. User responses to such an array can then be tested in two dimensions. A given population of users (of known socioeconomic characteristics) can be given the opportunity to choose freely among the selected sites; the results are then taken as indicators of that population's preference, or "palatability." Responses can also be tested for consistency by exposing a sample of users to the site array and asking each to express a rank-order of preference for all sites; the expressions of preference can then be tested for correlation with site attributes. The effects on palatability that are independent of site characteristics and that derive from interactions among users (e.g., overcrowding) can be detected by testing a series of user populations, each of a different size.

Since such an experimental approach would be very costly, attention should also be given to finding recreation areas similar enough, in terms of factors not here under examination, that correlation techniques could be applied directly to data collected operationally. In fact, development of such an approach would appear to be essential for effective research in this area. But whatever the approach, once significant correlations

have been made between resource attributes and user responses, it should become possible to construct a site-quality classification or index for the resource uses in question. The classification, based on specific combinations of validated resource attributes, would relate resource characteristics to specified outputs of given uses. Thus, a particular resource classification would suggest a number of alternative outputs defined by the quantity and quality of the service rendered. For example, a given campground resource might yield 100 man-days per season of isolated camping, or 400 man-days of moderate-density camping, or 1,600 man-days of crowded camping.

A third step in the research would be to examine a resource in order to determine the effects of different levels and types of use on the attributes of the resource. Applying the resource-quality classification developed in the second phase of the research, one could then classify sites at various points in time, and information on use history between the dates of classification could be analyzed to measure the influence of rate of use on the quality of a resource. This step would ultimately be essential for determining the resource's carrying capacity and for estimating the depletion component in the cost of its use.

2. *Unique and Irreproducible Resources*

Since the environments associated with certain recreation experiences occur only rarely in nature, are fragile, and cannot be reproduced, they demand special consideration within a national recreation system. As pointed out in Chapter 3, the cost to society of providing a service is, theoretically, exactly equal to the value of the services foregone as a consequence of diverting resources from their provision to the alternative in which they are actually employed. That is, in terms of the theory of opportunity costs, when consumer preferences shift, resources, under normal conditions, will be diverted from areas of declining demand to those of rising demand. When the resources are rare and irreplaceable, however, they may be diverted to an end that is incompatible with the requirements for their preservation. The option of reassigning the resource to its original use may be sacrificed; the consequences of the diversion may become irreversible. Accordingly, the notions of *option demand* and *option value* arise in connection with unique or rare and irreplaceable environmental resources.

Although the option value may be difficult to measure directly, it is possible to estimate the cost of retaining an option in a given situation by estimating the net value of the service derived from the alternative use of the resource that must, thereby, be foregone. Here, moreover, it

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becomes crucial to consider the asymmetrical character of the implications of technological progress for environments and facilities yielding, respectively, reproducible and irreproducible services. If the effect of technological progress is to reduce continuously the real cost of providing, by alternative means, the services, recreational or other, that would otherwise have to be foregone in order to preserve a unique environment, the cost of conserving that environment may not only be small, it may be ephemeral. The circumstances associated with hydroelectric development (one use of an environmental resource) provide an illustration. The cost advantage of hydroelectric installations over alternative means of producing power has been declining throughout this century, in view of the dramatic progress that has been made in the performance of thermal electric stations. In general, as progress reduces the real costs of production in industry and agriculture (i.e., continuously increasing output per man-hour), the tradeoff between goods and services that deplete, as distinct from services that conserve, an irreplaceable environmental resource will increasingly favor the latter with the passage of time. Depending upon the rates of technological progress maintained in relevant areas, the present value (discounted stream of annual values over time) of preserving an environmental resource may vastly exceed the foregone value of its employment for alternative, depletive purposes.

The differential rates of technological progress are also relevant to this problem. The extractive industries are of particular interest since they constantly compete for resources that are suited also to outdoor recreation. Advances in transportation and in the manufacture of outdoor recreation equipment should also be studied, since both could be instrumental in increasing the demand for recreation experiences associated with irreplaceable resources.

To summarize, research should be undertaken on recreation resources in order to:

1. measure quality factors that are dependent upon both environmental attributes and the availability of facilities and services, and correlate these factors with user preferences;
2. establish standards for site factors, discrimination of which will permit yields of varying quality, for factors considered either individually or in combinations;
3. determine the impact of varying levels of use density on the quality of recreation experiences, in particular the carrying capacity that can be sustained without loss of quality;
4. explain user behavior in recreational environments including the

sociopsychological causes of misuse, and explore ways of modifying such behavior in the interest of environmental quality;

5. develop means of preventing overuse of resources, such as pricing and rationing—e.g., offering incentives for users to engage in alternative forms of recreation, controlling access, or staggering the discretionary time of major user groups;

6. develop criteria for the selection, management, and preservation of unique irreproducible environments.

E. Planning, Coordination, and Administration Systems

The organizational structure and administrative effectiveness of the nation's recreation services have to be subjected to systematic evaluation, particularly in view of the heavy demands that will be placed upon them in the future. Included for exploration in the study should be such organizational arrangements as cooperative undertakings by neighborhoods, communities, cities and counties, and regional governmental units, as well as arrangements among federal and state agencies, perhaps along the lines of the present division of responsibility in the administration of reservoirs. Attention should also be given to ways of increasing the role of the private sector (see Chapter 3, Sections D1, D2, and E3).

In making these studies, it is essential to keep in mind a very common constraint with respect to personnel. A sizable proportion of the administrative and managerial personnel in outdoor recreation activities has been trained in other fields and cannot be expected to perform as efficiently as professionally trained personnel in long-established bureaucracies. Improvement will, of course, occur in the normal course of operations as experience is accumulated or as a consequence of specialized training or retraining programs. It can also result as a by-product of *ad hoc* experimentation. This is a long-term expectation, however, and in the intervening years, there may well be a considerable margin of possible improvement in outdoor recreation services by making their administration more effective.

A program of research on the organization and administration of outdoor recreation resources and services could appropriately include:

1. Historical studies and comparative analyses of the structures and policies of governments and governmental agencies, and of planning and decision-making processes affecting natural resource allocation. These studies might logically be divided into two parts: one focusing on

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areas of direct governmental responsibility; the other on areas in which governments perform only regulatory or promotional functions. Particular stress should be placed upon instances in which jurisdiction and interests are shared by several governmental agencies with each other or with private organizations.

2. Analytical reviews of jurisdictional congruence, or lack thereof, affecting the exercise of overlapping or interrelated functions, such as zoning, environment control, and recreation planning.

3. Examination of the legal problems involved in the acquisition and assembly of public land for outdoor recreation, including patterns of land ownership and land-use control (zoning and public access) and tax mechanisms that discourage speculation.

4. Comparative analysis of and experimentation with alternative inter-governmental arrangements for planning, developing, and managing recreation services.

5. Analysis and development of alternative budgetary strategies for the allocation of resources to recreation services and supporting functions.

6. Identification and amelioration of common administrative problems, such as employee morale and motivation, headquarters-field relationships, and interpersonal difficulties encountered in working with specialists from a variety of disciplines.

7. Experimentation with instruments for monitoring the results, both intended and unanticipated, of new or modified procedures.

8. Analysis of information flow among administrators, especially their access to management data and to new developments in the management and policy sciences.

F. Access-Systems Research

The function of providing access to recreation resources takes in a number of important aspects of outdoor recreation. Some recreation resources require transportation by vehicle within the recreation site itself. Some can be made more accessible to larger groups of users only by providing convenient, low-cost modes of local (crosstown) transportation. Indeed, even long-distance transportation to a recreation site may properly be viewed as the initial stage of a user's access to recreation, since travel begins the psychological preparation of an individual or group for the experience offered at the recreation site. A skier, for example, begins his recreation experience when he boards the weekend ski train and joins other ski enthusiasts. As travel itself has become a major

form of recreation, more attention is being paid to the recreational qualities of transportation facilities themselves. Highways are being located and designed with an eye to the scenic, cultural, or educational features of the adjacent land. Ships formerly devoted to commerce are being changed to cruise liners.

Providing access in the immediate vicinity of the recreation site poses problems of increasing importance and complexity; not the least of these is the need to conserve the resource itself. But it also creates many opportunities for guiding and enhancing recreation experiences.

However, access to a resource depends on more than transportation or a convenient location. Access to some public waterways is denied by private or federal ownership of adjacent land and shorelines or by the absence of parking areas, campgrounds, boat ramps, or sanitary facilities. Licenses, fees, and restrictions on certain types of vehicles are other common impediments.

Viewed thus broadly, the problem of access suggests several lines of research. Engineering, planning, and design studies are needed to improve functional and environmental aspects of transportation and other elements of access. Engineering, economic, and sociological studies are needed to supply sound bases for integrating the recreation and transportation functions of travel. Economic and legal concepts of property rights must be related to what research reveals about recreational needs, and legal and administrative bases for equitable and effective access management must be developed.

The following illustrate some of the more specific areas in which such research is needed:

1. The manner in which the inconvenience or high cost of transportation prevents various categories of users from satisfying their preferences for outdoor recreation or leads them to substitute other forms of recreation. The forms that such substitutions take should also be studied (see Chapter 3, Section B).

2. The effects on patterns of outdoor recreation use of advances in transportation technology, including the design of completely new modes of transportation.

3. The conflict between the public interest in access to recreation sites and existent patterns of private ownership of lands and waterways, including legal techniques that might be developed to accommodate both interests.

4. The psychological and technical considerations essential to the safety and enjoyment of travel.

5. Alternative modes of low-cost transportation for transporting urban residents to recreational facilities outside their immediate neighborhoods.

G. Information Services for the Public

Essential adjuncts to the nation's recreation services are the communication channels that link these recreation services to their users on a continuing basis. Too often, even when information is available, it is expensive and at times misleading. New systems are needed for informing users about underused and overused areas and allowing them to make advance reservations; for advising them of special activities, even those no more than a block away; or even for providing recreation vicariously to those unable to participate directly.

The system in general should provide channels of such a nature and scope that all segments of the population: (1) are made aware of all the alternatives available to them, (2) have accurate perceptions of the particular form of recreation they select, (3) are adequately instructed about measures to ensure their own health and safety and to conserve the site, (4) are provided with interpretive and instructional aids to increase the benefit they receive from the experience, and (5) are given the opportunity to provide feedback to managers.

Research is required:

1. to determine the type and quantity of information needed to maximize enjoyment of a given recreation experience, including the effect of public information and promotional activities on motivation patterns in outdoor recreation;
2. to assess the psychological impact of environmental education and nature appreciation on users of resource-based recreation facilities, especially the effect on their perceptions of the value of the experience;
3. to analyze the response of various segments of the population to recreation rules, guidelines, and instructions; and
4. to analyze recreation users' needs for information in order to identify the conditions required for its favorable reception, such as the most appropriate times for its delivery.

H. Outdoor Recreation Data Bases and Information Analysis

The fact that there is no national clearinghouse for data on the supply and use of facilities for outdoor recreation makes the research on the

requirement for uniform, reliable data of particular significance. Surveys, planning studies, and other projects under the sponsorship of public and private agencies are accumulating a welter of fragmented and heterogeneous bodies of data, with gaps and overlaps that generally preclude their use for replications or as complements to one another. Systematic investigations are needed to develop standards and conventions for data compilation, storage, and accessibility, plus centralized arrangements suited to the interests of users, planners, managers, and commercial services industries.

The many interlocking systems that provide the social service called "recreation" have always lacked exact definitional, classificatory, and measurement units that would permit the most useful description of their area attributes and user needs. Continuous research is needed to develop technically sound and economically practical measurement scales for recreation requirements, intensity of recreation use, and projected space and facilities requirements.

Research is needed to:

1. develop standards based on appropriate units of measurement, along with the necessary checklists and manuals, to guide the conduct of recreation surveys on a neighborhood, municipal, regional, or national scale, to be used in the planning, design, management, and operation of recreation services;
2. establish linkages between recreation data and other data series, especially the national census;
3. promote systems-design and systems-analysis efforts aimed at improving measurement, sampling, and predictive capabilities; and
4. undertake design and cost-effectiveness studies for data-handling systems to meet user requirements for information storage, retrieval, and dissemination.

I. Education and Training to Meet Manpower Needs

While substantial quantities of natural resources, facilities, and time are already committed to outdoor recreation, it is estimated that the demand for them, which has shown a steady rate of growth in the past, will accelerate in the future. Increased attention must be given, therefore, to planning and establishing education and training facilities that will be required to provide the professional and management personnel, in numbers and kinds, that will be needed to operate the greatly expanded recreation services of the future.

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Research linked to the development of education, training, and re-training programs should include efforts to:

1. predict future changes in personnel requirements and determine generally the types of skills and other attributes required in recreation managers;
2. indicate the kinds of competence that should be given priority in training programs—that is, those in shortest supply for which there is a projected need;
3. establish the organizational requirements and training prerequisites for professional, as opposed to management, personnel; and
4. develop imaginative programs to train or attract personnel to fill the needs identified above.

APPENDIX A

recreation as social action

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A Paradigm of Social Recreation

Recreation and Work

Recreation is a form of social life. Work, also a form of social life, is one of its counterpoints. While "recreation" eludes a simple positive definition, its character may be clarified by contrasting it with work. Some of the commonly cited contrasts fail to survive critical examination, however. The contrast of recreation as inherently pleasurable and work as displeasure may be dismissed out of hand. The seven dwarfs "whistle while they work," but the young debutante suffers through the cotillion. Also, the systematization or rationality of the activity is not cogent to the distinction. The work of the artist is spontaneous, while the chess player sharpens rationality to a fine point. Neither does the distinction rest upon the commonsense character of the activity. Fishing is work for one and play for another.

All these contrasts fail because neither work nor recreation can be defined on the individual level. An activity becomes work when enmeshed in a particular social matrix. It is called work when that social system has production-consumption as one of its goals. Second, an activity is called work when the individual is socially obliged to engage in it.

NOTE: The concepts in this paper were first developed under a grant from Resources for the Future, Inc. For a more detailed elaboration of these ideas, see Klausner, Samuel Z., *Human Action in a Non-Human Environment*, Washington, D.C., Resources for the Future, Inc. (forthcoming).

The demand that one work is considered a legitimate demand in most parts of our society. The demand is supported by moral sanctions (the virtue of work and the immorality of not working) and by coercion (giving or withholding the means of physical sustenance).

Not all nonwork activities, on the other hand, are *ipso facto* recreation. The deacon of a church or the mother of a family is neither working nor "playing." (In labor force and economic analyses, they may be classed as working, but not gainfully employed.) Religious groups may have working leaders, who receive performance-contingent rewards, and nonworking communicants. Recreation may also play a part in religious group life (the church picnic), or be part of family life (family camping). It may even be an adjunct to work (the company bowling team). But religious and family groups exist alongside occupational groups and are, primarily, neither work nor recreational groups. Occupational groups, on the other hand, are almost entirely constituted by work roles.

Recreation in its pristine form may, like work, be defined in terms of a social context. This context seems to engage some group that, on the one hand, is wider than the primary group of a particular family or particular church but that, on the other hand, is narrower than the community of common economic interest of the occupational group. Recreational activities take place in groups that are culturally more homogeneous than occupational work groups and culturally more heterogeneous than family groups. Their boundaries may follow family lines, as they do in traditional societies, or ethnic, ethno-religious, or racial lines. In a small, culturally homogeneous town, the recreation group and the community could be coterminous. In a large urban setting, recreation may be a neighborhood affair, especially where neighborhoods are also culturally homogeneous. Among those emancipated from residential constraints in establishing friendships, recreational time is shared with members of a "social circle"—a delimited community sharing some particular "style of life" (the country club, the Bohemians, the professional circle). The style of life may be determined by ideology and/or some composite of income level and ways of allocating income among consumption items.

Recreational Groups

The recreational group is a social system within the larger society. Recreation may involve relations with different people than those with whom one works. A vacation can mean leaving one community—the community of residence—and joining another. Recreation, however, does not generally form the sole basis of relations even within a recrea-

tional group. Rather, recreation is a functional activity in such groups, just as work is a functional activity contributing to the goal of occupational society (some, but not all, sporting or playing associations formed specifically around a particular game would be a limiting case).

The larger society in the United States is dominated by occupationally determined relations. The principal ranking system, the system of social authority, and the economy are all based primarily on work. (This is a peculiar feature of certain Western societies. In Bedouin society, for example, rank, authority, and income are more closely tied to lineage than to work. The Soviet Union illustrates the other extreme, where occupational relations predominate to an even greater extent than in the United States, and recreational activities are viewed as adjuncts to occupational relations.)

Recreational groups have been defined negatively, as one type of social subgroup not oriented to production-consumption as a goal and not imposing the obligation of participation. More precisely, recreation activities are not obligatory by the occupational system and are not directly geared to the attainment of the goals of that system. Since, in our society, the occupational system is dominant, recreation appears peripheral or even unimportant. However, the activity of recreation contributes to the life of these nonoccupational social groupings and derives importance from the part that such subsocieties play in the entire social fabric.

Looked at from the perspective of such groupings, moreover, recreation is indeed tied to their goals and is indeed subject to obligatory norms. The affirmation of subgroup solidarity and culture is one of the goals subserved by recreation. Such goals, unlike the goals of production, are not attained by manifestly pursuing them. Group solidarity, like love, rests upon trust and sentiments of commitment. Manifest pursuit of such a goal vitiates it. Therefore, though recreation appears "purposeless" when judged in terms of the instrumental, goal-oriented action of the occupational group, it is far from purposeless when viewed within the context of the subgroups it serves. Further, recreational groups do obligate their members to participate in recreation. One's office-mates may not really care if one takes a vacation, but one's family may press the requirement. People in certain social positions must give dinner parties for people in other social situations who must attend. In a traditional society, violation of these mores could lead to economic sanctions. In our society such nonparticipation may lead to ostracism from the offended group, but would provoke economic sanctions only insofar as the recreational groups are articulated with occupational groups. (Once entering a recreational situation, one is subject to many rigid

rules—the rules of play—but this is on another level and will be treated separately.)

The definition of work may now be modified. Work is an activity within the occupational society. It contributes to the attainment of a goal of that society—specifically, to the goal of production. The norms of obligation imposed by the occupational society are legitimated and compliance enforced by the broader society. Recreation, on the other hand, is an activity that takes place within more culturally homogeneous subsocieties—principally, within ethnic, ethno-religious, and ideological groupings, including social circles composed of individuals sharing a common life style. It contributes to the goals of such subsocieties, and they, in turn, subject participation in recreation to norms of obligation which, in the United States at least, are not necessarily supported by the broader society.

Types of Recreation

The concept of recreation may be partitioned according to the “meanings” it has for the groups in which it occurs. These meanings differ according to the social situation of the group or the participants’ personalities. Second, it may be classified according to the “meanings” it may have for the individual participants. Recreational activity may be thought of as a way in which a group plays out a symbolic drama. There may be symbolic experiments with solutions to particular group problems. This experimenting may flow into real situations in which those solutions are applied. This is the sense in which the “playing fields of Rugby” were related to the action at Waterloo. Literary criticism, the sociology of literature, and the sociology and psychology of play contain analyses of this function. Recreation may also be a ritual of reaffirmation or rededication to the existence of a particular group. This function has been analyzed in work on the sociology of religion. The dramatic meaning, defined by the function of the drama for the life of the group, is the *content* of recreational activity. A classification of dramatic themes could generate a typology of recreation. This is a formidable task and will be deferred at this time. There is, however, some correspondence between the *form* recreation takes and the *content* of the drama played through that form. A classification of forms of recreation is a fundamental requirement for research. One possibility for formal analysis will be suggested here.

Recreational form may be classified in three dimensions—one regarding the relation of man to nature, a second regarding the social relation of man and man, and a third regarding the psychological relation of

man to himself. The following illustration will be developed for the case of relatively extended vacations. With some modifications, it should be applicable to other types of recreation.

In the area of the man-nature relation, spatial location and movement seems to be a crucial dimension. All recreation (with the exception of the limiting case of the homebound—television-watching and digging in the garden) involves some movement—movement that is both geographic and social. The individual or group abandons the physical and social environment of the residential community and selects a spatial and a social setting appropriate to the recreation. This “appropriateness” is dependent upon the dramatic content to be expressed. Spatial movement may either be to *open spaces*, such as the desert or the seashore, or to enclosed *inner spaces*, such as forests. This defines two polar types of vacation classified in relation to topography. Intermediate to these is the case of movement without a defined direction, or movement vacillating first to inner and then to open spaces. People travel—sometimes emerging at the open end of land and sometimes delving into the woods. The process of movement itself, rather than the destination, is then the primary setting. This type may be called *nomadism*. Its polar opposite is the *sedentary* vacation. Dramas associated with gaiety and sexuality tend to seek out the seaside setting, while those associated with solemnity and labor have more affinity for the forest glen. These associations between form and content may be presumed to be culturally influenced and individually learned.

A second distinction rests upon a change in social relations—in effect, a matter of the direction of social movement. In leaving the occupationally determined community of residence, the vacationing group or single person may seek isolation from all other groups or persons. Such movement, from a social center outward, may, by physical analogy, be called *centrifugal*. Alternatively, the group or person may leave to join another group—go to a resort, a religious community, a summer camp of a particular political shade, or to visit other members of the family. This movement that assembles vacationing persons or groups into another group may be called *centripetal*.

A third distinction rests upon a psychological characteristic. Some recreation is relaxing; it is the occasion for “recharging batteries.” The vacationer may lie on the beach or be a spectator to a spectator sport. The environment (social or natural) is invited to provide input to the *passive* individual. On the other hand, recreation may be *active*. The individual may work upon the environment. He may hike and explore (changing the environmental perception both cognitively and emotionally) or hunt or surf (feeling mastery of physical forces).

The values along each dimension are continuous. Every recreational occasion may be assigned some value on each one. They may be thought of as defining a three-dimensional space with the form of a vacation defined by its three coordinates in that space. Thinking of the dimensions only as two dichotomies and a trichotomy, however, twelve ($2 \times 2 \times 3$) "distinct" formal settings for recreation are defined. Each setting is a stage for a "relatively distinct" type of recreational drama. The scheme on the facing page suggests illustrative content for each of the twelve formal settings.

Three other important classifying dimensions have not been included in this recreation typology: the length of time allocated to the recreation, its location in "social time," and the size or type of the recreational unit. The importance of each of these is on a different level of analysis. The amount of time involved (which may be related to other factors, such as distance traveled) may vary from the long vacation cruise to a short

glimpse at the movies. While the differences that follow from various lengths of time are striking, they do not seem, in themselves, to involve qualitative distinctions of setting. A family picnic in the local park and an overnight family stay at a campground may both provide settings for affirming family solidarity. Both could be characterized by inner space location, centripetal social movement, and an active psychological orientation. The overnight outing would, however, provide for a more *intense* drama, both placing a greater strain on family relations and holding the possibility of greater integration. Length of time affects the intensity of a particular type of vacation. While not part of the above typology, it is a significant variable for economic analysis, concerned less with defining the social psychological meaning of a commodity than with measuring the demand for it. A greater length of time allocated to a vacation will extend the range of choice of vacation types. While not significant for the present analysis, except insofar as the priorities established in scarce time are indicators of meaning, the time at one's disposal is crucial for an operations analysis.

The patterning of vacations with respect to "social time" is, on the other hand, likely to have consequences for their meaning. Weekend recreation, summer vacations, and holiday outings are all tied to cosmic changes and to changes in the types and rates of general social interaction. The special meanings of these occasions are not linked to the form as much as to the content of the recreation. The location in social time allows articulation of the recreational activity with other contemporaneous social activity. The yearly gathering around the Christmas tree unites recreation to religious institutions; a visit to Gettysburg on Memorial Day brings it into the purview of political institutions. The

Vacation Types Based on Relation to Topography, Direction of Social Movement, and Psychological Orientation

Topographic Relation	Direction of Social Movement	Psychological Orientation	Illustration
Sedentary, outer land	Centripetal	Active (1)	Beach surfers
		Passive (2)	Beachfront hotel guests
	Centrifugal	Active (3)	Family camping on the beach
		Passive (4)	Stereotyped South Sea Island paradise
Nomadic	Centripetal	Active (5)	Teenage western summer tour
		Passive (6)	Cruise ship
	Centrifugal	Active (7)	Hiking
		Passive (8)	Sightseeing
Sedentary, inner land	Centripetal	Active (9)	Camping on public campgrounds
		Passive (10)	Country hotel guests
	Centrifugal	Active (11)	Lone cabin in woods
		Passive (12)	Private serviced lodge in mountains

distinctions here involve a complexity on the content rather than on the formal level of analysis. The factor of location in social time would be important for analysis of the place of recreation in the broader social setting.

The cultural definition of the vacationing group, whether it is a family or club, is another important distinction, which, like location in social time, defines the relation between recreation and other social institutions. The size of the vacationing group is yet another important distinction. A vacation or recreation may be solitary, in a small group,

or a mass activity. Each of the twelve settings defined in the above scheme may accommodate groups of varying sizes. The difference here, again on another level, has to do with whether the analysis is to be referred to the personality or to the social system. If the function of recreation is integrative, one may speak of its being integrative for the individual personality (helps articulate the values or energies of a person), or integrative for a particular social system (helps articulate relations among a plurality of persons). It is important in analysis not to mix system references without explicitly allowing for mechanisms that translate between elements in the personality or elements in the social system.

Validation of the Perspectives

The paradigm presented above rests on two proposals and a suggestion about their connectedness. It is proposed that the content of recreation may be analyzed in terms of a drama in which the players must deal with a life problem. This concept could be validated by establishing a classification scheme for the dramas—much as the scheme for interpreting stories in the Thematic Apperception Test has been developed. Then, on the presumption that people located differently in the social structure have different life problems to work out, dramas of groups of such people might be compared in terms of some criteria of meaningful coherence between dramas and life situations, and the differences between social groups might be tested for statistical significance. The proposal would not, however, fall on some particular classification of dramatic themes. If no themes associated with a social or personal variable could be discovered, the proposed approach would not be useful for empirical research, though it might still retain some descriptive interest.

The second proposal, the one for a formal typology of settings, which is elaborated in this paper, could also be tested. Coordinates might be assigned to particular vacation activities through an empirical investigation. The assumption is that the different formal settings are associated with some nearly universal symbolic significances—that, for instance, entering a forest glen is, indeed, a matter of isolating oneself from one's usual environment. This meaning could be tested on an individual level with attitude-measuring scales, and on a group level by a content analysis of social communication.

These two proposals are independent. The validity of one does not depend on the validity of the other. Conceivably, one might prove useful, and the other not. However, the third proposal depends on their both being valid. It is, in fact, based on the suggestion about the interrelation

between form and content. This relation could be tested by seeing whether certain dramatic content is, indeed, statistically more likely to be played out in one formal setting than in another.

The Special Problem of Recreation Among Low-Income Urban Residents

Why the Neglect of the Inner City

Let us assume for the moment that a wide variety of recreational possibilities were visible above the cultural horizon as live options. Then, if, as has been argued, recreation is the playing out of a life drama, and, if various subgroups differently situated in society have their own interest-determined dramatic problems to work out, then they might be attracted to different types of recreation. It would then follow that different formal settings would be preferred by each group. This seems to be the case. Urban Negroes (even with income held constant) are not found, proportionately, among backwoods campers. Bowling attracts more of the working class than of the social elite. Sports seem to be related to class and ethnic position. Games, for instance, for particular cultural-historical reasons, are associated with certain social groups—tennis with the English, baseball with the Americans, sport flying with the western United States, and scuba-diving with the Florida Coast. The argument in this paper cuts deeper: not simply the manifest rules and physical facilities used, but also the very forms and dramatic contents of recreation are class-related.

This fact has a significant consequence for federal interest in recreation in the United States. Typically, individuals project the recreational culture of their own social circle, or social class, on the larger society. Members of each class or circle either believe that others share their recreational interests or that it would be good for them if they did. This is, of course, a misperception, since each social group has, in part, different problems to work out through recreation.

Outdoor recreation personnel are drawn from a narrow band within the middle class of our society. The policy-making, operating, and research personnel are almost entirely white, of English or Western European descent, disproportionately from rural backgrounds and adherents of a physically active life style. They have tended to project an image of outdoor recreation (created in their own milieu) upon the whole of the society. Thus, prominence is given to activities in the woods, such as hunting and fishing, or water-related activities, such as boating and swim-

ming. As a result of failure to distinguish a class perspective from a national perspective, less than an equitable allocation of funds for recreation has been realized. In addition, some groups of the inner city do not share this cultural perspective. Some of the wealthy among them create their own, nonfederally dependent recreational facilities. The inner-city impoverished will be making increasingly visible demands for allocation of funds and facilities as they learn to exercise the vote and other means of political influence. At present, their pressure is most directly felt at the municipal level. To some extent, municipalities are projecting the demand of these groups to Washington, so some federal funds are flowing to urban recreational projects.

Recreational requirements of the impoverished sector of inner-city populations are not easily communicated to decision-makers. Their inability to formulate and articulate their preferences is one reason for this. A second reason has to do with the clogging of the channels for the ~~communication~~ information; the lack of either research or other mechanisms for opening the channels. And, finally, the natural limitations to appreciation by one class of the message of another, as noted above, affects the reception of the message. Research is one way to open the flow of information at all three points—by articulating demand, opening communications channels, and interpreting the demand to the policy-maker.

Some Questions for Research on Urban Recreation

The first research question is one of population parameters. What are the relevant recreational groups among low-income urban residents? As noted above, the recreational community is wider than the family and narrower than the occupational-residential community. The inner-city population is far from homogeneous. It consists of a multitude of recreational communities. Each might differ in the distribution of its members among the types of recreation. The obvious population breakdowns are ethnic, ethno-religious, political-ideological, and racial. Italo-American and Polish-American communities congregate at different locales and engage in different activities. Both differ from the Negro community in their concepts of recreation. The Negro community itself is not homogeneous. The recent migrant from the rural South and the second- or third-generation city dweller are struggling with different dramatic problems. In terms of research operations, these observations imply the need for social background data on the respondents to any research instrument.

The crucial question, in terms of the above theoretical perspective,

is to ascertain the meaning of recreation for these populations. What are the life problems they play out? Through what activities and in what settings do they enact their dramas? Such questions may be answered with the help of two techniques: drawing upon the tradition of clinical psychology, depth interviews could be conducted with some small sample; drawing upon the tradition of anthropology, participant-observation of people engaged in recreation could go far toward clarifying its meaning.

A series of specific questions may be asked about the meaning of recreation in various populations and in the low-income Negro populations in particular. In the middle class, sex-homogeneous recreational activities, such as hunting by males and card-playing by females, are common. Among low-income Negroes, most recreation seems to be sex-heterogeneous. Among youth, boy-girl recreation, the drama of mating, is significant. Among all age groups, family picnicking, a type of harvest rite, seems frequent. Apparently, the association between recreation and sexuality differs across class lines. Very little federally sponsored recreation makes provision for supervised playing out of the mating drama, and its provision for family outings places more emphasis on aesthetic contemplation of nature than on the harvest rite. This has implications for planning facilities.

Eating rituals are an important feature of recreation in this group. Some of the activities, borrowed from other cultural groups, even take their names from the type of food consumed—beer parties, weiner roasts. The drama here may express the problem of food deprivation in everyday life. If research shows this to be the case, it would be important to allow for this eating and for the eating of specified foods in the development of facilities. (This suggestion does not detract from the necessity of dealing directly with food deprivation, but reflects the observation that the nutritional is but one of a multitude of meanings that may crystallize around eating.)

Among youth, one observes a good deal of aggressive (not necessarily hostile) behavior. This drama has to do, in part, with the establishment of dominance-submission relations—at least micro-orders of dominance or submission. (The macro-order is set in the larger social system.) Also, one observes behavior in which the self is tested against some natural barrier; the meaning of this activity, on the psychological level, relates to the seeking of stress. Stress-seeking is not classbound, but it is probably differentially distributed among classes. Facilities might make provision for such activities. The functional equivalent of the mountain for the mountain-climber may be needed in the more congested city environment.

Some More General Questions

With this understanding of dramatic content and appropriate formal settings, data could be collected from a broad sample. A simple inventory of types of recreation preferred by residents of the inner city is needed. Some of this information might be obtained by secondary analysis of the data of earlier outdoor recreation surveys and similar broad sample efforts. This information could be supplemented by interview-questionnaire approaches to quota samples in selected areas. A developing literature on problems of interviewing low-income urban residents should guide efforts here.

A number of specific research questions arise. Some of these will be illustrated with respect to the underemployed Negro community.

First, what is the relationship between the world of work and the world of recreation. It would seem that the unemployed, having a great deal of leisure time, would participate in available free recreation in the park or playground more than would their employed brethren. This would lead one to expect greater use of local facilities with greater unemployment. A more likely hypothesis, in terms of the above framework, is that unemployment and recreational participation are positively correlated. In the American situation, where status and rank, even in primary groups such as the family, are contingent upon position in the occupational structure, it is likely that alienation from one's occupation would imply alienation from the social relations of the recreational community. Such a study would elucidate some links between recreational and vocational rehabilitation.

Research questions arise in relation to the recreational facility itself. The formal typology suggested above sets a broad frame for these questions. A playground or a park is socially neutral, but becomes endowed with certain social meanings by virtue of the social activity that takes place in it. Locations, say, within a park, become "territories" for which social groups may compete. When the group controlling the facility commands overwhelming social power and uses this power to exclude another group, the question becomes one of discrimination in the use of public and quasi-public facilities. The less powerful excluded group may appeal to outside forces for admission—the constitution or the judiciary, for example. The strife at Columbia University in the spring of 1968, in which the students tried to interpose their will to strengthen the bargaining position of urban slum-dwellers for use of a new university gymnasium, is a case in point.

When the groups are more nearly matched in power, an outright conflict over the facility may erupt. Such conflicts are extensions of the

broader social conflict in which the facility is merely one battleground. The research problem is to find out under what conditions violence may erupt in a recreational facility and how it may be managed by collecting and analyzing a series of case studies of violent incidents in such facilities.

Sometimes facilities shift "ownership." A kind of "Gresham's law," unrelated to the relative power of the groups involved, seems to operate. The arrival of one social group may lead to peaceable evacuation of the territory by another social group. A study of the natural history of recreational facilities (not limited to the inner city) could be conducted. A model could be developed for processes of social area change. The inner city has a special problem resulting from the mobility of its population. The demand for given facilities in given locales may change over time. An elite population may want rocks to romp over. City parks across the country attest to this problem. Also, Negroes are not, at present, attending the carefully developed zoos and art museums of the cities.

These are but a few of the research problems that could be examined in the perspective of the paradigm. The paradigm itself should be validated. If it has validity, it may help guide conceptualization of recreation research for a variety of populations.

APPENDIX B

federal outdoor recreation research programs

Agencies Conducting Research

1. The National Park Service (NPS), Department of the Interior
2. Corps of Engineers (ACE), U.S. Army
3. Office of Water Resources Research (OWRR), Department of the Interior
4. Federal Water Pollution Control Administration (FWPCA), Department of the Interior
5. U.S. Forest Service (FS), Department of Agriculture
6. Economic Research Service (ERS), Department of Agriculture
7. Agricultural Research Service (ARS), Department of Agriculture
8. Cooperative State Research Service (CSRS), Department of Agriculture
9. Federal Extension Service (FES), Department of Agriculture
10. Tennessee Valley Authority (TVA)
11. Office of Urban Technology and Research, Department of Housing and Urban Development
12. Office of Education (OE), Department of Health, Education, and Welfare
13. Economic Development Administration (EDA)
14. Bureau of Outdoor Recreation (BOR), Department of the Interior

15. Bureau of Land Management (BLM), Department of the Interior
16. Bureau of Sport Fisheries and Wildlife (BSFW), Department of the Interior

**1. The National Park Service fiscal year 1968,
\$2 million**

AUTHORITY: Historic Sites Act of 1935; approved August 21, 1935; PL 74-292 (49 Stat. 666; 16 U.S.C. 461-467). Act of June 23, 1936; PL 74-770½ (49 Stat. 1894).

The National Park Service (NPS) conducts studies relating to natural science, archeology, history, fish, and wildlife. The natural science studies of NPS receive approximately \$500,000 a year, of which \$200,000 is available for research contracts. Studies are directed toward solving the National Park Systems resource-conservation problems. Part of this work is accomplished through contractual arrangements and contracts with universities and other governmental research agencies.

Archeological research is conducted to study the recovery of irreplaceable historic and archeological resources from water-control projects. An estimated \$1.5 million is received for this research, which is primarily a salvage operation.

Historical research is conducted to support the interpretive program of the parks. Natural-science-research activities, which are concerned largely with ecology and geology, provide information to achieve management objectives and to enhance the interpretive program of the parks.

**2. U.S. Army Corps of Engineers fiscal year 1968,
\$1 million**

AUTHORITY: Act of November 7, 1962; PL 88-172 (Stat. 304; 33 U.S.C. 426a).

The Army Corps of Engineers (ACE) spends over \$1 million annually on research applicable to the recreational uses of Corps projects. Much of this research is concerned with facilities planning and is done in-house. The Corps, however, has supported other recreation-related studies, such as the projection of levels of recreation activity at reservoirs and the reduction of sedimentation at places where water is stored for recreation purposes.

Fishery-engineering research contributes valuable information re-

garding efficient fish-passage devices, spawning-area replacements, and fish behavior and mortality. A current project involves research to determine the effects of water quality, above and below dams, on fishing and other recreational uses.

3. Office of Water Resources Research fiscal year 1968, \$518,200

AUTHORITY: Water Resources Research Act of 1964; approved July 17, 1964; PL 88-379 (78 Stat. 329); and as amended by Act of April 19, 1966; PL 89-404 (80 Stat. 129).

The Office of Water Resources Research (OWRR) makes annual grants to each state to assist in establishing and operating a water resources research institute, or equivalent agency, at state land-grant colleges. Research includes, but is not limited to, investigations of water-resource supply and demand, conservation, water use, and water quality in relation to fish, wildlife, and recreation. Research is also conducted in the economic, legal, social, geological, geographical, ecological, and other aspects of water problems. Two recent recreation studies that illustrate the institutes' interests are: "Competitive Recreational Uses of Selected Iowa Lakes" and "Criteria for Evaluating the Quality of Water-Based Recreation Facilities in North Carolina." Funds authorized by the Water Resources Research Act for operating the institutes are: \$75,000 for the first year; \$87,500 in each of the second and third years; and \$100,000 each year thereafter.

The OWRR also gives matching grants to the state water resources research institutes for research, investigations, and studies of specific projects "which could not otherwise be undertaken" by the institutes. The projects cover the same water-resources research and training areas described under the work of the institutes. One million dollars was authorized for the first year (1965), with the amount increasing by \$1 million each year until, at the end of five years (1969), the matching authorization will be \$5 million. Typical approved projects include (1) recreational values of water in major reservoirs of New Mexico, (2) impact of water-based recreation (New York), and (3) recreational value of water in a mutually exclusive setting (Utah). The OWRR is also authorized to make grants for research in water problems related to the mission of the Department of the Interior. Educational institutions, private foundations or institutions, private firms, individuals, and gov-

ernmental agencies are eligible for grants. Congress appropriated \$2 million for this program in fiscal year 1968.

**4. Federal Water Pollution Control Administration
fiscal year 1968, \$300,000 directly and approximately;
\$4 million indirectly.**

AUTHORITY: Federal Water Pollution Act; approved June 30, 1948; PL 80-845 (62 Stat. 1155, as amended; 33 U.S.C. 466 *et seq.*).

The Federal Water Pollution Control Administration (FWPCA) conducts a broad program of research, demonstrations, and studies relating to the causes and control of water pollution. The program is undertaken both directly and through contracts with public and private agencies and individuals.

Research is addressed to such problems as practical means of removing maximum possible amounts of pollutants from sewage and other water-borne wastes and improved methods for identifying and measuring the effects of pollutants on water uses. The results of much of this research are applicable to planning and developing water resources for quality recreation experiences.

The Federal Water Pollution Control Administration also makes grants to public and private agencies and institutions and individuals for research projects and demonstrations related to the causes, control, and prevention of water pollution.

5. U.S. Forest Service fiscal year 1968, \$828,000

AUTHORITY: McSweeney-McNary Act; approved May 22, 1928; PL 70-466 (45 Stat. 699). The Whitten Act; approved April 6, 1956; PL 84-473 (70 Stat. 100, 16 U.S.C. 490-581). Act of September 6, 1958; PL 85-934 (72 Stat. 1793; 42 U.S.C. 1891-1893).

The Forest Service (FS) conducts an \$828,000 recreation-research program on both private and public forestlands, with emphasis on forest-recreation visitors, their interests, motivation, trends, and economic impacts. Biological problems related to the management of forests for recreation are also studied. This research is supplemented by other FS research in wildlife habitat, timber, range, watershed management, and forest protection.

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Forest Service recreation research is conducted at 13 of its 80 research locations, most of which are located at or near universities. Often the research is conducted in cooperation with universities, other public agencies, and state and industrial organizations.

The FS cooperative forestry-research programs with universities may include research on outdoor recreation. Most of the funds granted for recreation research by the FS are used by those institutions for small grants—usually from \$500 to \$5,000—to finance research projects of graduate students. In addition, occasional grants of \$20,000–\$60,000 are made to an institution to finance research on critical recreation problems by especially well-qualified scientists. These grant programs help to accomplish three objectives. They (1) obtain needed research, (2) facilitate training of graduate students, and (3) provide broader opportunities for developing specialists needed in the expanding recreation programs of all agencies. Examples of outdoor recreation research projects undertaken with cooperative aid grants are:

1. outdoor recreation opportunities and satisfaction as they relate to visitor preferences;
2. depreciative recreation behavior—its incidence and control;
3. wilderness recreation interpretation;
4. effects of state-park development on local economy;
5. social characteristics and attitudes of car campers and wilderness users; and
6. forest landscape aesthetics.

6. Economic Research Service

AUTHORITY: Secretary of Agriculture's Memorandum No. 1446, Supplement 1 of April 3, 1961.

The Economic Research Service (ERS) conducts and contracts for outdoor recreation studies related to resource development, land and water use, river-basin planning, and rural-area development. Research problems selected are largely program-oriented, and deal with the economics of resource use. Research projects include studies of recreation as an alternative farm enterprise, and as a source of accelerated economic activity and employment in low-income rural areas. The legal aspects of recreational use of land and water are also studied, including the nature and regulation of rights connected with these resources.

Research is carried out largely by ERS personnel in Washington and

in the field, with perhaps 6 or 7 percent done by contract. It is also done in cooperation with state experimental stations and with other agencies in states in which special studies appear desirable and feasible. Typical studies relating to outdoor recreation include:

1. income opportunities for rural families from outdoor recreation enterprises;
2. where Ozark tourists come from and their impact on local economies;
3. recreation facilities and services operated by Federal Housing Authority borrowers; and
4. taxation of recreational enterprises on private rural lands.

7. Agricultural Research Service

AUTHORITY: Basic Agricultural Act of 1862; approved May 15, 1862; (RS 250 U.S.C. 511) as amended.

The Agricultural Research Service (ARS) conducts research related to outdoor recreation at numerous laboratories and locations in the United States. Many of these projects are conducted in cooperation with the states and public and private agencies. A limited amount of recreation-related research is done by nonfederal agencies under contract.

Recreation-related research has included the study of materials and construction methods for rural structures, including those used for outdoor recreation. Studies have been made on plant disease and insect control and on the development and management of improved varieties of turf for use in recreation areas. Research has also included the investigation of weed control in irrigation and drainage canals, farm ponds, irrigation reservoirs, and lakes.

8. Cooperative State Research Service

AUTHORITY: The Hatch Act; approved March 2, 1887; (24 Stat. 440; 7 U.S.C. 361 *et seq.*) as amended by the Act of August 11, 1955; PL 84-352 (69 Stat. 671). Act of September 6, 1958; PL 85-934 (72 Stat. 1793; 42 U.S.C. 1891-1893). McIntire-Stennis Act for Forestry Research; approved October 1962; PL 87-788 (76 Stat. 806).

The program of the Cooperative State Research Service (CSRS) is primarily one of formula grants made to state agricultural experiment stations for research in agricultural and rural life, and in some instances

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for forestry research at designated state institutions. It is supplemented by a small program of competitive grants.

Research directly concerned with outdoor recreation includes economic studies of outdoor recreation resources and the income from them. The demand for recreation, the characteristics of the users, and the place of outdoor recreation in the total leisure-time-use complex are studied. Other research directly contributing to outdoor recreation includes wild-life management, forest management, turf development and management, farm-fishpond management, and control of insects that are harmful or a nuisance to man. Research on soils and plants, as well as on animals, also contributes information usable for solving specific problems in outdoor recreation.

9. Federal Extension Service

AUTHORITY: The Smith-Lever Act; approved May 8, 1914; PL 63-95 (38 Stat. 372) as amended by the Act of October 5, 1962; PL 87-749 (76 Stat. 745; 7 U.S.C. 343).

The Federal Extension Service (FES) conducts pilot or experimental programs under cooperative agreements with state extension services. Their studies often cover outdoor recreation. For example, FES has a contract with the Cooperative Extension Service, University of Vermont, for "Developing and Testing Program Subject Matter and New Methods and Techniques for Use in the Area of Outdoor Recreation."

10. Tennessee Valley Authority fiscal year 1968, \$375,000

AUTHORITY: Tennessee Valley Authority Act of 1933; approved May 18, 1933; PL 73-17 (48 Stat. 58, as amended; 16 U.S.C. 831). Presidential Executive Order No. 6161 of June 9, 1933.

The Tennessee Valley Authority (TVA) conducts research on recreation matters related to its projects and developments. Studies have been made of the recreation use and development of TVA reservoirs and lake-frontage property, the economics of sport fishing, fishing pressure and catch in reservoirs and tailwaters, and environmental sanitation in recreation developments. Some research has also been conducted on the socioeconomic characteristics of users of specific TVA reservoirs. Surveys are conducted and visitor counts are made for specific planning purposes.

The TVA conducts technical studies and demonstrations designed to

advance development of fish and wildlife resources in the Tennessee Valley. This concerns primarily the environmental effects of construction and operation of reservoirs, and of forestry development and utilization. In fiscal year 1968, the Fisheries Branch of TVA spent about \$225,000 on research, mostly concerned with rough fish control. The total budget for outdoor recreation planning and research is \$435,000. About one third is for research, and two thirds for planning. Much of this research effort can be classed as data collection.

The TVA provides advice and assistance to state and local agencies in fish and game improvement. Within the TVA, fish and game development activities are closely integrated with other projects involving multiple-use management of reservoir land, forestland, and waters.

11. Office of Urban Technology and Research (formerly the Office of Urban Studies and Clearinghouse Services) fiscal year 1968, \$50,000

AUTHORITY: The Housing Act of 1961—Title VII; approved June 30, 1961; PL 87-70 (75 Stat. 149), as amended by the Housing and Urban Development Act of 1965, approved August 10, 1965; PL 89-117 (79 Stat. 451; 40 U.S.C. 461). The Housing Act of 1954—Title VII; approved August 2, 1954; PL 83-560 (68 Stat. 590) as amended by the Act of September 2, 1964; PL 88-560 (78 Stat. 793); and the Housing and Urban Development Act of 1965.

The Office of Urban Technology and Research may contract for research concerning open-space land and urban-beautification programs in amounts up to \$50,000 per year. Various studies are under way, including research into the merits and costs of zoning, tax abatement, and other regulations, to broaden community open-space efforts.

As part of its Open Space Program, under Title VII of the Housing Act of 1961, the Department of Housing and Urban Development administers grants to local governmental units for demonstration projects, which may include a wide range of recreation-oriented facilities. This program, currently funded at a level of approximately \$1 million, has assisted numerous instances of experimental development of facilities for enhancement of urban recreation opportunities.

The Office may use up to 5 percent of the funds appropriated under the Urban Planning Assistance Program for studies, research, and demonstration projects in comprehensive urban planning. The objective of this program is to develop and disseminate new knowledge and techniques to improve the comprehensive planning process, including recreation planning.

12. Office of Education fiscal year 1968, \$60,000

AUTHORITY: Cooperative Research Act; approved July 26, 1954; PL 83-531 (68 Stat. 533), as amended by the Elementary and Secondary Education Act of 1965; approved April 11, 1965; PL 89-10 (79 Stat. 27). Mental Retardation Facilities and Community Mental Health Centers Construction Act of 1963; approved October 31, 1963; PL 88-164 (77 Stat. 293). Vocational Education Act of 1963; approved December 18, 1963; PL 88-210 (77 Stat. 403, Part A, Section 4).

The Office of Education (OE) supports educational research through its Cooperative Research Program, which seeks to develop new knowledge of major educational problems in recreation and outdoor education and to devise new applications of existing knowledge in solving such problems.

In addition to contracts and jointly financed cooperative arrangements, the Commissioner of Education makes grants to universities, other public or private agencies, institutions, organizations, and individuals for the conduct of research in education. Through one grant program, the OE supported development of a curriculum in recreation. Five other projects in physical education with some relation to recreation have been supported.

The OE also makes grants to nonprofit educational or research organizations for research or demonstration projects in the education of the mentally retarded, physically handicapped, or other health-impaired children.

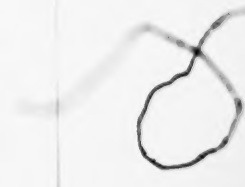
Grants may be given for projects that develop recreation and outdoor education for handicapped children.

Under the Vocational Educational Act of 1963, grants are made to state and local educational agencies and universities to develop research and training programs as well as experimental and pilot programs designed to meet special vocational needs, including recreation, of youth. Emphasis is placed on programs designed to meet the needs of youths with handicaps that restrict successful participation in regular programs.

13. Economic Development Administration

AUTHORITY: Public Works and Economic Development Act of 1965—Title III; approved August 26, 1965; PL 89-136 (79 Stat. 552).

The Economic Development Administration (EDA) conducts an extensive program of research into the causes and effects of unemployment, underemployment, and chronic depression as a basis for development of programs to raise income levels. Outdoor recreation projects are one of the segments considered in economic-development studies.



While some of the research work is handled by the agency's personnel, most of it is accomplished through contracts with private individuals, institutions, and consulting firms, as well as with state and local agencies.

14. Bureau of Outdoor Recreation fiscal year 1968, \$160,000

AUTHORITY: Act of May 28, 1963; PL 88-29 (77 Stat. 49; 16 U.S.C. 460-1).

The Bureau of Outdoor Recreation (BOR) sponsors, coordinates, and conducts research in outdoor recreation. Such studies are undertaken by the Bureau directly and by contract or cooperative agreement. The BOR conducts an annual survey of federal research in outdoor recreation and has undertaken various projects in support of the Nationwide Outdoor Recreation Plan.

Methods of improving techniques used for predicting attendance at recreation facilities are being studied, and an analysis of the structure and use of systems for classifying resources for use in planning recreation areas is under way. The BOR is also developing a system for the uniform collection and reporting of outdoor recreation statistics by states.

The BOR has initiated a program of indexing outdoor recreation literature. This index compiles and disseminates information on scientific and technical literature relating to outdoor recreation. A related project is the joint endeavor to classify the on-going research registered with the Science Information Exchange of the Smithsonian Institution and to publish a catalog of research on outdoor recreation.

15. Bureau of Land Management fiscal year 1968, \$25,000

AUTHORITY: Public Land Administration Act; approved July 14, 1960; PL 86-649 (74 Stat. 506). Classification and Multiple-Use Act; approved September 19, 1964; PL 88-607 (78 Stat. 986).

The Bureau of Land Management (BLM) conducts outdoor recreation research by contract with institutions and individuals. In past years, there have been contracts with the ERS to study the economic losses from denial of access to public lands. Currently, Colorado State University has been given a \$10,000 contract and BLM staff assistance to develop a pilot model for campground visits at less intensively used recreation lands.

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Research conducted by the BLM is primarily a cooperative effort. Funds come from operating appropriations and are estimated to be about \$750,000 annually for all types of research. The BLM plans to devote between \$50,000 and \$100,000 annually to people-oriented research problems peculiar to the types of areas the agency administers.

Research projects have included: the Outdoor Recreation Demand Feasibility Study at Colorado State University, and the Open Space Study at the University of Utah.

16. Bureau of Sport Fisheries and Wildlife fiscal year 1968, \$23,075,000

AUTHORITY: Lacey Act of 1900; approved May 25, 1900 (31 Stat. 187, as amended; 16 U.S.C. 701). Fish and Wildlife Coordination Act; approved March 10, 1934; PL 73-121 (48 Stat. 401, as amended; 16 U.S.C. 661-666c). Fish and Wildlife Act of 1956; approved August 8, 1956; PL 84-1024 (70 Stat. 1119, as amended; 16 U.S.C. 742a-742j). Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act); approved September 2, 1937; PL 75-415 (50 Stat. 917, as amended; 16 U.S.C. 669-669b, 669c-669i). Federal Aid in Fish Restoration Act (Dingell-Johnson Act); approved August 9, 1950; PL 81-681 (64 Stat. 430, as amended; 16 U.S.C. 777-777k).

The Bureau of Sport Fisheries and Wildlife (BSFW) conducts an extensive program of wildlife and fishery research. The major portion of this effort is considered recreation research because it is undertaken to provide greater opportunities for public enjoyment and harvesting of fish and wildlife.

The BSFW carries out research and surveys wildlife on lands and waters acquired or controlled by any federal agency. This research forms the basis for improved concepts and techniques for preservation and management of wildlife resources. The BSFW also conducts a comprehensive sport-fisheries research program to improve management and conservation of sport fisheries. Supplementing in-house research programs is a small amount of highly specialized research performed under contract with BSFW by universities and research institutes. River basin studies constitute another area of special study of applied research to determine the consequence of specific water-development projects on fish and wildlife resources.

The wildlife research program of the BSFW receives \$6.9 million in funds; fisheries research, \$4.1 million; and river basin studies, \$2 million (fiscal year 1968).

These research efforts are primarily in-house, with the work being done in field stations throughout the country. Cooperative Wildlife

Research Units are located at 18 universities, and are manned by two BSW employees at each university. A portion of the \$40,000 allotted to each center is available as graduate-student stipends.

Additional research is financed by the BSW under the Pittman-Robertson and Dingell-Johnson Acts. Some \$25 million is available to states and territories annually for purposes allowed under these programs. Research for the restoration of fish and wildlife is one of these purposes, and receives an estimated \$2 million. Special management studies, not research in the narrowest sense, receive another \$8 million. An additional \$75,000 is available for grant research on anadromous fish.

Additional Research Programs Related to Outdoor Recreation

In addition to the federal research programs most directly concerned with outdoor recreation problems, there are others that from time to time produce information of general value in relation to recreation. Among these programs* are the following:

Bureau of Disease Prevention and Environmental Control, Department of Health, Education, and Welfare

The Bureau of Disease Prevention and Environmental Control conducts research relating to prevention of accidents in outdoor recreation. It also administers a grant program to support research in environmental health. Some of this research has been directly related to recreation, including work on swimming-pool chemicals and the effects of aeration upon marinas.

Coast Guard, Department of Transportation

The Coast Guard publishes an annual compilation of the types and causes of all small-boat accidents that occur on the navigable waters of the United States.

Business and Defense Services Administration, Department of Commerce

The Business and Defense Services Administration does a limited amount of outdoor recreation research on an *ad hoc* basis in response to particu-

* Source: Bureau of Outdoor Recreation, *Federal Outdoor Recreation Programs*, 1967. U.S. Department of the Interior, Washington, D.C. 224 pp.

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lar needs of the agency or of business at a given time. For example, the agency is analyzing the economic impact of governmental investment in outdoor recreation on the private sector.

Delaware River Basin Commission

The independent Delaware River Basin Commission conducts and sponsors research on water resources and uses, including recreation, within the Delaware River basin.

Farmer Cooperative Service, Department of Agriculture

The Farmer Cooperative Service conducts a program of research designed to determine how farmer cooperatives, including recreation cooperatives, can be most effectively organized and operated.

Bureau of Commercial Fish, Department of the Interior

The Bureau of Commercial Fish conducts research in commercial fishery resources. However, most fish species with commercial value also are important as sport fish for outdoor recreation.

U.S. Travel Service, Department of Commerce

The U.S. Travel Service publishes statistics on travel by foreign visitors in the United States. Information collected covers patterns of spending and behavior of visitors, including recreation.

Bureau of Public Roads, Department of Transportation

The Bureau of Public Roads conducts and supports research that is directly and indirectly related to outdoor recreation. This includes studies of transportation engineering and economics, road-use, highway beautification, and highway planning and design.

Bureau of Labor Statistics, Department of Labor

The Bureau of Labor Statistics has conducted research on current and future manpower needs and availability for certain occupations, including those in outdoor recreation.

Federal Power Commission

The Federal Power Commission develops comprehensive river basin plans for various purposes. These plans consider public uses, including recreation, of river basin waters.

Small Business Administration

The Small Business Administration makes grants for research in managing, financing, and operating small business enterprises. Research has resulted in some studies in outdoor recreation.

Bureau of Census, Department of Commerce

The Bureau of the Census conducts a variety of censuses that contain data related to outdoor recreation. For example, the National Travel Survey of 1963 collected statistics on "travel for pleasure" by Americans.



APPENDIX C

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